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ANNUAL REPORT

OF THE

BOARD OF HEALTH

OF THE

DEPARTMENT OF HEALTH OF THE CITY OF NEW YORK

FOR THE

YEAR ENDING DECEMBER 31, 1906.

VOLUME II.



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STUDIES FROM THE RESEARCH LABORATORY

For the Year 1906.

THE RESULTS OF THE USE OF REFINED DIPHTHERIA ANTITOXIN, GIBSON'S "GLOBULIN PREPARATION," IN THE TREATMENT OF DIPHTHERIA.

By William H. Park, M. D.,
Director of the Research Laboratory,
and
Binford Throne, M. D.,
Resident Physician, Hospital for Contagious Diseases, Department of Health.

All who use diphtheria antitoxic serum extensively are aware that in from 10 to 30 per cent. of the injected cases of diphtheria, pronounced rashes, of an urticarial or erythematous type, occur. In the majority of cases these serum effects are disagreeable rather than harmful, but occasionally the rash is accompanied by constitutional disturbance presenting, in the most severe cases, high temperature, vomiting, prostration, and sometimes other symptoms. These marked constitutional reactions are especially likely to follow very large injections of from 10,000 to 20,000 units in young children who have high temperatures due to bronchopneumonia or other complications. In these cases the serum reaction is distinctly harmful, for by lowering the general resistance of the body to other infections it neutralizes to some extent the good done by the neutralization of the diphtheria toxin by the antitoxin. Furthermore, the rashes, especially those of a scarlatinal type, are puzzling in a diagnostic sense.

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There have been many attempts made to separate diphtheria antitoxin from the non-antitoxic portions of the accompanying serum. Those interested in the chemical side of these investigations are referred to the recent article by Gibson.* In 1900 Atkinson, working in this laboratory, eliminated all but the globulins from the antitoxic serum. This partially refined antitoxic serum was tried in 36 cases. The results,† both as to antitoxic effect and serum reactions, were so nearly identical with those in an equal number of cases treated with the whole serum from the same horse that it did not seem to be worth while to go to the expense of preparing such an antitoxic solution. Attempts to effect a practical separation of the antitoxin from a greater portion of the proteid non-antitoxic substances of the serum were continued. In August, 1905, we began trials with an antitoxic solution from which much more of the serum proteids had been eliminated than in the Atkinson preparation. Dr. R. B. Gibson, bacteriologist in the Research Laboratory, placed the half-saturation ammonium sulphate precipitate derived from the antitoxic serum in saturated sodium chloride solution, and found that along with a portion of the globulins all the antitoxin passed into solution. In this way the nucleoproteids and the insoluble globulins present in the Atkinson preparation were eliminated. The soluble globulins precipitated by acetic acid were filtered, partially dried, and finally placed in a sac of parchment membrane and dialyzed in running water. This antitoxic solution of soluble globulins was then rendered neutral, and sufficient sodium chloride was added to make it isotonic.

In carrying out the process there is a loss of about 30 per cent. of antitoxin units, because of retention upon filters, loss in dialyzing, etc. On testing this solution on a number of children we found that the results were favorable, except that more local pain was produced than with the whole serum. Stricter attention to the neutralization soon overcame this, so that when the serum was injected on one side and the globulin solution on the other the patient was unable to tell the one from the other. In October, 1905, the antitoxic globulin solution was administered by the medical inspectors not only in the hos-

* Journal of Biological Chemistry, vol. i, Nos. 2 and 3.

† Archives of Pediatrics, November, 1900.



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pitals for diphtheria but also in private homes. Since December, 1905, it has been gradually distributed throughout New York City, and is now the only form of antitoxin supplied by the Health Department.

Results from the Use of Antitoxic Globulin Solution—The antitoxic effect was identical with that of the whole serum. Our tests have shown that not only the toxins and the so-called toxones produced in media by diphtheria bacilli, but also those produced in the animal by injections with living diphtheria bacilli are neutralized completely by the globulin solution. We could not detect the slightest evidence that any desirable substance in the antitoxic serum is lost by the refining process. Not only we ourselves, but the resident and attending physicians watching the cases in the contagious disease hospitals noted that the rashes following the injections of the globulin solution seemed to be less severe than those which followed the injection of whole serum. It was especially noted that there were very few who had any constitutional disturbances even when the rashes did appear.

As the serum supplied by different horses, or from the same horse at different times, is known to vary in the rashes and other after-effects it produces, and as it is, therefore, difficult accurately to compare the globulin solution and the whole serum derived from different bleedings, it was decided to make a decisive test by collecting a quantity of serum from four different horses, mixing it thoroughly, and then after precipitating one-half, to treat an equal number of patients simultaneously with the whole serum and with the globulin solution. These tests were carried out chiefly in the Willard Parker Hospital, but a few also in the Riverside Hospital. We are indebted to Drs. Lynah and Watson, the resident physicians in charge of these two hospitals, for their interest and aid.

It soon became evident that the serum we had chosen for the test was of such a character that eruptions and constitutional disturbances usually appeared in those injected with the whole serum. Whether it was because the serum from four long-treated horses had been mixed, or whether because of some other reason, it is certain that this serum produced more after-effects than any lot we had used in the hospital since 1899. These after-effects were so marked and occurred in such a large proportion of the children that we had to abandon the use of

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the whole serum. The rashes in those given the globulin preparation were much less severe. In persons over ten years of age almost no rashes occurred after either preparation. The patients treated with the whole serum and the antitoxic globulins were most carefully watched by us and the course of the disease, as well as the after-effects, noted.

TABLE I.

Results of Injecting the Mixed Antitoxic Horse Serum in Fifty Cases of Diphtheria Occurring in Children under Ten Years of Age.

Case.		Age in Years.	Antitoxin Units Given.	Deleterious Effects.	
				Constitutional Disturbances.	Rash.
1	X	0.9	10,000 M	Marked, 5° rise of temperature.	Eighth day, general erythema lasting six days.
2		1	3,000 S	Slight.	Tenth day, urticaria general.
3		1	14,000 M	High temperature, due partly to pneumonia.	Fourteenth day, urticaria lasting five days.
4	I	1.3	15,000 M	Moderate, 2° rise of temperature.	Eighth day, general erythema.
5	X	1.9	5,000 S		
6	I	1.5	35,000 S	High temperature and marked disturbance.	Sixth day, urticaria; eighth day, general erythema of very severe type.
7	X	1.3	10,000 M		
8	X	1.3	13,500 M	Moderate, with 1° rise of temperature.	Fourth day, severe general urticaria lasting three days.
9	X	1.6	10,000 M	Masked by pneumonia having 106° temperature.	Seventh day, severe general erythema.
10		1.7	10,000 M	Moderate, with 2° rise of temperature.	Sixth day, severe general erythema lasting three days.
11	X	1.9	10,000 M	Marked, with 3° rise of temperature.	Third day, morbilliform; eleventh day, severe general urticaria.
12		1.5	7,000 M	Slight.	Fourteenth day, erythema and urticaria general for two days.
13	X	1.5	10,000 S	Slight, with 1.5° rise of temperature.	Second day, quite severe erythema lasting one day.
14	X	2	17,000 M	Slight, with 1.5° rise of temperature.	Third day, very severe urticaria for two days.
15	X	2	10,000 M	Marked, but possibly due to sepsis.	Third day, urticaria and erythema very severe, lasting fifteen days.

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Case.		Age in Years.	Antitoxin Units Given.		Deleterious Effects.	
					Constitutional Disturbances.	Rash.
16		2	3,500	S		
17	I	2.5	7,000	M	Moderate, 2° rise of temperature.	Fifth day, severe urticaria for six days.
18	X	2.5	14,000	M	Slight.	Thirteenth day, severe urticaria for three days.
19	X	2	3,000	S	Slight.	Twelfth day, general urticaria for two days.
20		2	10,000	M	Slight.	Sixth day, general urticaria for three days.
21		1.5	7,000	S		
22		2.5	7,000	S	Extremely severe, 3°-6° for ten days.	Eighth day, morbilliform continued and intense for ten days.
23		2	7,000	S	Extremely severe, 2°-4° for one week.	Fifteenth day, morbilliform continued and intense for eight days.
24	X	2.5	8,000	S	Severe, 4° rise of temperature.	Tenth day, erythema for two days; seventeenth, second lasted two days.
25	X	2.5	7,000	M	Severe, 4° rise of temperature.	Seventh day, erythema for two days; twelfth day, second lasted five days.
26		2.8	12,500	M	Slight.	Twenty-second day, general erythema.
27	X	3	10,000	M	Severe, but possibly due to pneumonia.	Fourteenth day, erythema for five days.
28	X	3	10,000	M		
29	I	3	8,000	M	None, except 1.50 rise of temperature.	Sixth day, urticaria for two days.
30	X	3	7,500	M		
31	I	3	10,000	M	Severe, 5° rise of temperature for one week.	Thirteenth day, severe erythema for one week until death.
32	X	3	3,000	S		
33	X	3	14,000	S		
34		3	7,500	S	Severe, for ten days 4° rise of temperature.	Thirteenth day, severe erythema lasting ten days.
35		3	14,000	M	Very severe, with 4°-7° rise of temperature for ten days.	Eighth day, general erythema over whole body for ten days.
36		4	3,750	S		
37	X	4	10,000	M		Twelfth day, severe erythema.
38		4	10,000	S		
39	X	4	10,000	M	Moderate, 2° rise of temperature.	Sixth day, general erythema lasting three days.
40	X	4	5,000	S		Fifth day, general erythema lasting three days.

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Case.		Age in Years.	Antitoxin Units Given.	Deleterious Effects.		
				Constitutional Disturbances.	Rash.	
41	x	4	10,000 M	Marked, 4°-6° rise of temperature.	Tenth day, very severe, lasting five days until death.	
42		4.5	12,000 S			
43		5	10,000 M	Moderate, 3° rise of temperature.	Fifth day, very severe, urticaria, lasting five days.	
44	x	6	5,000 S			
45		6	10,000 M	Moderate, 2° rise of temperature.	Sixth day, general erythema lasting three days.	
46		7.5	7,500 M	Marked, 4° rise of temperature.	Fifth day, general erythema. Eighth day, general urticaria.	
47		9	10,000 S	Slight.		
48	x	8	3,750 S			
49	x	8	3,750 S			
50	x	9	3,750 S			
Total: 50 cases.		3.24 years average.	Average units per case 9,250	M=28 S=22	Thirty-five developed constitutional disturbances.	Thirty-six developed rashes.

The character of the case is indicated by the following signs:

x=intubated. I=croup. M=marked severity (of which eighteen were intubated).
S=slight severity. .=absent.

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TABLE II.

Results of Injecting Refined Antitoxin (Antitoxic Globulins) Made from Serum Obtained from the same Horses and at the same Bleedings as the Antitoxic Serum Used in the Cases Given in Table I.

Case.	Age in Years.	No. Units of Antitoxin.	Deleterious Effects.	
			Constitutional Disturbances.	Rash.
1	0.5	7,000 S		Sixth day, moderate urticaria and erythema lasting four days.
2	0.9 X	15,000 M		Second day, general erythema lasting two days.
3	1 1	10,000 M	Masked by pneumonia.	Ninth day, general erythema lasting five days until death.
4	1.5	5,000 S		
5	1.5 X	12,000 M	Rise of 1° of temperature.	Third day, urticaria for one day.
6	0.3 X	7,000 S		Second day, general erythema for three days.
7	1.5	12,000 M		
8	.4	3,000 S		
9	1.2 X	10,000 M		Tenth day, urticaria lasting four days.
10	1.2	15,000 M		Eighth day, urticaria lasting two days.
11	1.5 X	12,000 M		Eighth day, urticaria, pretty severe, lasting three days.
12	1.3 X	12,000 M		
13	0.9	5,000 M		Fourth day, erythema lasting thirty-six hours.
14	.5	7,000 M		
15	1.5 X	12,000 M		Fifth day, urticaria for one day.
16	2	10,000 M		
17	2 1	12,000 M		
18	2 1	10,000 M		Seventh day, mild urticaria for one day.
19	2 1	12,000 S		
20	2	24,000 M		
21	2 1	7,000 S		
22	2	7,000 S		
23	2 X	10,000 S	Masked by pneumonia.	Thirteenth day, general erythema lasting three days.
24	2	10,000 M		Tenth day, general erythema lasting three days.
25	2.5 X	12,000 M	Rise of 1° of temperature.	Fifth day, urticaria, then erythema—together lasting five days.

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Case.	Age in Years.	No. Units of Antitoxin.	Deleterious Effects.	
			Constitutional Disturbances.	Rash.
26	2.5 X	12,000 M	Rise of 3° of temperature for twelve hours, then normal.	Seventh day, urticaria for two days.
27	3 X	17,000 M		
28	3 X	10,000 M		Eleventh day, erythema for two days.
29	3 I	12,000 M		
30	3 X	20,000 M		Sixth day, urticaria lasting two days.
31	3 X	12,000 M		Second day, slight general erythema lasting twenty-four hours.
32	4	7,000 S		Sixth day, urticaria lasting two days
33	4.5 X	8,000 M		
34	4 I	12,000 S		
35	4.5 I	12,000 M		
36	4 X	12,000 M		
37	4	12,000 M	Rise of 2° of temperature for one day.	Eighth day, severe urticaria, traces lasting five days.
38	4	12,000 S		
39	5	5,000 S		
40	5	12,000 M		
41	5	3,000 S		
42	5	19,000 M	Rise of 2° of temperature for one day.	Sixth day, severe erythema, traces lasting seven days.
43	5.5	3,000 S		
44	6	10,000 S		
45	6	3,000 S		Sixth day, urticaria and erythema for three days.
46	6	4,000 S		Seventh day, urticaria for two days.
47	7 X	12,000 M		
48	8.5 X	24,000 M		
49	9	7,000 S		
50	9	3,500 S		

50	3.18 years average.	10,600 units average injections.	M = 31 S = 19	Constitutional disturbances, 5; possibly 7.	Rashes in 23.

X = intubated. I = croup. M = marked severity. S = slight severity. = absent. Of the fifty cases, there were thirty-one of marked severity; eighteen of these were intubated.

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TABLE III.

Comparative Table Giving a Summary of the Constitutional and Local Reactions, Obtained in the Treatment of Fifty Cases of Diphtheria in Young Children with a Lot of Antitoxic Serum Derived from Four Horses and of an Equal Number of Similar Cases Treated with a Solution of the Antitoxic Globulins Derived from a Portion of the Same Lot of Serum.

	Children who were treated with the whole serum.	Children who were treated with the antitoxic globulins.
Marked constitutional symptoms accompanied by severe and persistent rash in..	28 per cent.	0 per cent.
Moderate constitutional symptoms accompanied by a well-developed erythema or urticaria	18 "	4 "
Very slight constitutional disturbance accompanied by a more or less general rash....	20 "	.. "
No appreciable constitutional disturbance, but a more or less general urticaria or erythema	4 "	34 "
No appreciable after-effects whatever.....	30 "	54 "

TABLE IV.

Duration of Rashes.

	Days.								Total Rashes.
	1	2	3	4	5	6	7	8 and over.	
Antitoxic globulin cases.....	4	7	5	3	3	..	2		23
Whole serum cases.....	1	4	10	1	10	3	2	5	36

After all the tested patients had become fully convalescent or had left the hospital, the histories were finally gone over and compared. It was found that fifty children under ten years of age treated with the whole serum had lived at least nine days, or long enough for the development of serum effects. The first fifty consecutive cases in children under ten years treated with the antitoxic globulins precipitated from the same lot of serum and living nine days or over were taken to compare with these. Table I. gives the salient points for each case treated with the whole serum and Table II. the same for those treated with the solution of antitoxic globulins. Tables III. and IV. summarize these points.

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It is noticeable that not only were the rashes more frequent, but also much more persistent in the patients who received the whole serum. Twenty-three rashes following the use of the whole serum lasted over three days in this series, as against only six in the antitoxic globulin cases.

Summary and Conclusions—The results obtained in these series of one hundred cases are so definite that it seems safe to conclude that the removal of a considerable portion of the non-antitoxic globulins, as well as the albumins from the serum by the Gibson method, has eliminated much of the deleterious matter from the serum, so that severe rashes, joint complications, fever, and other constitutional disturbances are less likely to occur from the antitoxic globulins than from the antitoxic serum from which it was obtained. The globulin preparation when tested by animal experiments appears to retain all the antitoxic properties of the whole serum. The portion of the globulins still accompanying the antitoxin in the Gibson preparation is shown to be capable of exciting rashes and occasionally constitutional disturbances, although, as stated above, to a less extent than the serum. It is almost certain that methods will be devised to refine antitoxin still farther, and so possibly eliminate all appreciable deleterious effects of the antitoxic serum.

Whether this globulin solution will be much less likely than the serum to cause collapse in the rare cases of peculiar susceptibility, such as in a certain percentage of those suffering from status lymphaticus, is still undetermined. It has now been used in several thousand cases of diphtheria without accident.

The concentration of antitoxin made possible by the elimination of the non-antitoxic substances is not only a convenience, but of distinct clinical importance, as it tends to encourage large doses.

The antitoxic globulin solution, like the serum, tends to become slightly cloudy when kept at moderate or high temperature, and substances such as solutions of carbolic acid and trikresol are especially likely to cause a precipitate to develop. The antitoxin in the globulin preparation retains its potency about as long as that in the whole serum.



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THE ETIOLOGY AND DIAGNOSIS OF HYDROPHOBIA.

Dr. ANNA WESSELS WILLIAMS, Assistant Director, and Dr. MAY MURRAY LOWDEN, Assistant Bacteriologist.

Introduction.

During the spring of 1904 the "Negri bodies" were demonstrated by one of us in smears from the central nervous system of animals dead from hydrophobia. At that time, however, the technic was poor and the stains were unsatisfactory, so the use of the method in diagnosis was not begun. Many of the cases reported by Dr. Poor were studied by us in this way, the "bodies" being demonstrated in smears from three horses and from several dogs and guinea pigs, while they were not found in normal dogs, guinea pigs, or rabbits, or in guinea pigs dead from tetanus or diphtheria toxin.

Last fall, in connection with the study of smears from vaccinia and variola stained by Giemsa's method, smears from hydrophobia cases were again tried and it was found that the "bodies" were brought out very clearly and characteristically by the Giemsa solution; and, as a consequence, the present work was planned.

Some of the most interesting material used by us has been obtained through the kindness of Dr. R. J. Wilson and of a number of veterinarians of New York City, to all of whom we wish to express our thanks. Most of the sections have been prepared by Miss C. R. Gurley. All of the work has been done with the help and encouragement of Dr. Wm. H. Park, to whom thanks are due.

Historical Review.

Investigations on hydrophobia have been carried on from three principal standpoints; first, the therapeutic; second, the diagnostic; and third, the etiologic. Since the establishment of the Pasteur treatment, the importance of making a quick diagnosis has become so evident that the efforts of many workers have been directed toward this end, and only occasionally has the purely etiologic standpoint been considered.

Pasteur and his immediate followers relied for their diagnosis entirely upon rabbit inoculations, and this meant a fifteen to twenty days'

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wait before the patient knew whether or not the treatment he was receiving was necessary. In 1898 this time was shortened to about nine days in our laboratory by Wilson, who found that guinea pigs came down with the disease much more quickly than rabbits.

From time to time it has been thought that certain histologic findings were diagnostic; for instance, the "rabic tubercles" of Babes, and the areas of "round and oval-celled accumulation in the cerebrospinal and sympathetic ganglia" of Van Gehuchten and Nelis, were said to be specific, but further study has shown that they are not absolutely specific for rabies. In many cases the whole picture of the grosser histologic changes is sufficiently characteristic to warrant the diagnosis of rabies, but often it is not so. Bailey, in his studies on the ganglion cells in normal and hydrophobic rabbits gives a good bibliography of the histologic findings up to 1901. It was not until Negri, in 1903, described certain bodies seen by him in the large nerve cells in sections of the central nervous system that anything was found which seemed absolutely specific for hydrophobia. Negri claims that these bodies are not only specific for rabies, but that they probably are animal parasites, and the cause of the disease.

He describes them as usually round or oval bodies from 1*m* to 23*m* long, and containing vacuoles in some of which are granules of varying size and number; generally there is a central larger structure surrounded by smaller ones. By Mann's method of staining, the organism generally takes a brilliant eosin-red, with the exception of the granules, some of which stain a light blue, and the others a faint red. The central structure gives the appearance of being a nucleus. The bodies are sometimes in touch with the nucleus of the host cell, sometimes far from it, often in the cell branches where they are more elliptical in shape. There are irregular, pear-shaped, and three-cornered forms, all of which special shapes Negri thinks due to the position of the organism within the host cell. He speaks of multiplying forms but does not describe any definite division forms. He says he is able to identify the bodies in the hanging-drop fresh, and in a weak acetic acid solution; but does not recommend this method for general use in diagnosis, as it is difficult to differentiate the bodies under these conditions from the nerve-tissue elements. He finds his organism generally in greatest



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numbers in the large nerve cells of Ammon's horn, less frequently in those of the cerebral cortex, the cerebellum, the medulla, the spinal cord, and the cerebrospinal ganglia. The organisms vary greatly in numbers in the different cases. In some cases he finds only an occasional one, while in others they are innumerable.

He says very little about the bodies in animals dying of fixed virus, merely stating that they have been found in rabbits that have died on the seventh day after inoculation with fixed virus, but that they are very tiny, infrequent, and found with difficulty. He finds the largest forms in dogs inoculated subdurally with street virus.

Negri's work was soon corroborated by many Italian observers. Volpino, Bertarelli, D'Amato, Daddi, Di Vestea, Guarnieri, and Martinotti, published almost immediately after Negri's first publication. They were soon followed by Celli and De Blasi, Pace, and Bosc. The "bodies" have been found by these authors, and later by others in all varieties of animals which are susceptible to hydrophobia, i. e., in dogs, cats, rabbits, rats, mice, guinea pigs, birds, cattle, horses, and human beings.

In 1904 Luzzani published a report of 179 cases, and in all but nine of those which were proven by animal inoculation to be rabies, the "Negri bodies" were found.

In our own laboratory in the same year, Poor examined 19 cases of street rabies and many cases of experimental rabies, and in all except those inoculated with fixed virus the "bodies" were found. In fixed-virus animals he found an occasional homogeneous eosinophilic granule in the cerebellar cells, about which he expressed no opinion. Similar granules were also seen by various other observers, some of whom consider them possibly tiny forms of the organism; but nothing definite has been observed about them, and as indefinite granules have also been seen in other conditions, their significance is uncertain.

In 1904 Negri's work, so far as the presence of these "bodies" in hydrophobia is concerned, was further corroborated by the following workers: Dominici, Marzocchi, Bandini, Fasoli, and Schüder. There was no dissenting voice as to their presence, and as to their diagnostic value. Many controls were made by the different observers, especially by Volpino, Marzocchi, Dominici, and Poor. They examined the cen-

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tral nervous system of various animals that had died from poisoning with tetanus, strychnine, pneumococcus staphylococcus, alcohol, formalin, tubercle bacillus, diphtheria toxin; and of human beings who had died from epilepsy, syphilis, alcohol poisoning, tuberculosis, and various nervous affections. Many normal animals were also examined, all with negative results so far as the " Negri bodies " were concerned.

During this time the " bodies " were tested for their resistance to various physical and chemical agents, such as heat, cold, drying, immersion in glycerin, etc., and they were found to retain their characteristic appearance and virulence after more or less manipulation. It does not necessarily follow, however, that the " bodies," even if they are living organisms, need to retain their characteristic appearance in order to be virulent. We know, for instance, that trypanosomes may seem to disappear from blood which continues to be infective. (Laveran and Mesnil.)

Remlinger showed that the medulla of rabbits inoculated subdurally with fixed virus may be virulent on the third day, but he did not work out the exact degree of virulence—that is, the approximate number of organisms in the material inoculated. The fact that it is virulent soon after inoculation, and that no " Negri bodies " have been found at this early period, he thinks is another indication that they are not organisms. He does not consider the possibility of there being tinier forms than those so far seen, but believes that the organism in its whole life cycle is ultra-microscopic in size.

In regard to the significance of the " bodies," up to 1905 all of these authors, with two exceptions, agree with Negri in considering them probably Protozoa and the cause of hydrophobia. The two exceptions are Remlinger and Schüder.

These latter investigators consider the fact that the virus can be filtered through a filter, practically impervious to ordinary bacteria, a proof that the " Negri bodies," which they say are too large to pass such a filter, are not the cause of hydrophobia. Bertarelli, however, showed that the residue after filtration was also virulent, and he and others expressed the opinion that besides forms too large to pass the filter there might be forms tiny enough to do so. We know that in a medium containing a growing protozoon we may find both large and



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small forms, the limits in size of the smallest forms not being known in some cases; the fact therefore, that the filtered portion and unfiltered solid residue both possess virulence is an added indication that we are dealing with Protozoa. MacNeal has shown with the trypanosomes that besides the large forms, there are forms tiny enough to pass a Berkefeld.

Practically nothing has been done with regard to the exact degree of virulence possessed by filtered and unfiltered portions of the emulsions of rabies virus. Late in 1905, Di Vestea showed that the filtered virus possesses characteristics different from unfiltered, thus indicating that the forms in each may be different in character. He thinks that the undiscovered extracellular forms may be tiny enough to pass the filter.

Quite recently Volpino elaborates more fully an hypothesis advanced by him in 1904, in regard to the filterable forms. He thinks that the real organism is very tiny, that probably only the inner bodies in the so-called "Negri body"—the tiny bodies which he had shown to be definite basophilic forms—are the parasites, and that the homogeneous-appearing substance in which they are imbedded and which makes up the rest of the "Negri body," as Negri describes it, is derived from the host cell, caused by the reaction of it to the parasite, He gives a number of drawings arranged in the form of a life-cycle to illustrate this idea.

Negri's latest article, appearing in June, 1905, states that the central body shows more characteristically as a nucleus in sections from rabid cattle which he had stained in a special way by hematoxylin, and that in the same animals there appear bodies presenting characteristics of cysts. These later studies confirm all of his previous work and emphasize the fact that some of the bodies contain a central complex characteristic mass of chromatin, sometimes appearing solidly stained, sometimes as a distinct network, and sometimes encircled by smaller solidly staining masses of chromatin. Each chromatin mass is surrounded by a clear, unstained ring.

The bodies which he interprets as cysts, he describes as similar in dimensions, shapes, and general staining characteristics to the other forms, but different in minute structure. By the staining method of

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Mann they seem to be filled with tiny, refractive, somewhat elongated granules. Some seem to be surrounded by a membrane which is occasionally notched as if about to break. The iron-hematoxylin stain brings out the structure of these bodies very clearly. They seem to be filled with numerous black-staining "spores" less than 1 micron long and narrower, which appear as tiny filaments slightly curved with a small swelling near the center.

In 1905 still other workers corroborated Negri's work, among them Abba and Bormans, Way, Zaccaria, Maresch, Schiffmann, Galli-Valerio, and Bohne. Only one author failed to corroborate the work. Maas, in sections from a case of human rabies could find no "Negri bodies." Luzzani in this year published another collection of cases. Out of 457, 297 proved by the biologic test to be hydrophobia, and in only nine of these were the "bodies" not found in sections. The bodies were not found in any other animal.

Maresch, by Bielschofsky's staining method, claims to have brought out the structure more distinctly.

Schiffmann, after studying the "Negri bodies" as they appear in street rabies and examining many controls, confirming fully the diagnostic value of the "bodies," studied the changes which they seemed to undergo in passage from animal to animal of the same species and of one species to another. He states that the greater the number of passages through a single species of animal, the smaller the "bodies," until in "fixed virus" in the rabbit no forms appear. He also says that he did not find any "bodies" in dogs inoculated with rabbit-fixed virus.

Bohne describes the shortest method so far published for examination of sections. The whole process lasts only three hours, and the author states that it is very satisfactory. The method is as follows: Small pieces of the nerve tissue are placed in 15 c.c. of pure aceton and kept at 37 degrees C. for about 30 to 45 minutes. They are then put in 55 degrees paraffin and left from 60 to 75 minutes, boxed, cut at 6*m*, dried at 60 degrees, and stained with a modified Mann's method in 4 minutes. The "bodies" show a vacuolated and granular structure and some of the elliptical forms seem to be dividing. On the whole they



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take more of a magenta stain than the "bodies" do in sections prepared in the regular way. The author considers their parasitic nature still doubtful.

During 1905 a good review of recent studies on hydrophobia came out in the "Bulletin de l'Institut Pasteur," and in 1906 Bertarelli published a good review in the "Referate" of the "Centralblatt für Bakteriologie."

We may sum up the results obtained from the foregoing studies as follows:

1. In nearly 100 per cent. of definite cases of street rabies characteristic "bodies" are found in the large nerve cells of sections from all or from a part of the central nervous system and the connected ganglia.

2. The general characteristics of most of these "bodies" are as follows: rounded or oval forms varying in size from 1*m* to 25*m*, with a homogeneous acidophilic ground substance containing a central body surrounded by granules; these inner bodies vary in structure and staining qualities, but are principally basophilic and may be in the form of reticular masses, rings, rods, or small granules, they are usually situated within vacuoles.

3. The "bodies" vary also in number, being very few in some cases, and numerous in others. According to one author they become fewer the greater the number of passages through a single species of animal, and are not found in fixed virus. Others have found occasional small forms in fixed virus, but not in large enough numbers to account for the infectivity of the nerve tissue.

4. No "bodies" have been found before the appearance of symptoms, although the central nervous system is infective before this time.

5. No "bodies" have been found in the peripheral nerves or in the salivary or other glands, although these organs have been shown to possess a certain amount of infectivity.

6. The most rapid satisfactory method of demonstrating the "bodies" for diagnosis is a complicated section process which takes at least three hours.

The filtered virus is infective, therefore some forms of the causative agent must be extremely tiny.

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8. In no other disease have bodies similar in appearance to the "Negri bodies" been found.

9. When the "bodies" are found in sections, the diagnosis of hydrophobia is certain and the biologic test need not be made; when they are not found, the case may have been one of hydrophobia and the biologic test must be made.

10. The significance of the "bodies" is still in doubt for the following reasons: (a) They have not been found in all cases of hydrophobia, notably not in fixed virus, neither have they been found in all parts of nervous tissue proved to be virulent, especially before the beginning of symptoms; (b) forms small enough to pass the coarser Berkefeld filters have not been seen; (c) the structure has not been shown definitely to be analogous to that of known living organisms; (d) no definite series of forms indicating growth and multiplication has been demonstrated; (e) the staining qualities, contrary to those of known Protozoa, are more acidophilic than basophilic.

In January of 1906 one of the writers made a preliminary communication of part of the work reported in the following pages. Emphasis was placed upon the fact that the demonstration of the "Negri bodies" by the "smear method" which was recommended by this writer in 1904 (see discussion under Poor's first article) had, by better technic, proved to be wonderfully successful. By this method the structure of the "bodies" is brought out more definitely than by the section method, and the whole process is much simplified and may be completed within half an hour after removal of the nerve tissue from the animal.

The method of examining the central nervous system, especially the brain, by smears has been used by several pathologists, among whom may be mentioned Ewing, who obtained interesting results by this method in his studies on the pathology of ganglion cells.*

* Just after this paper went to press the article by Frothingham appeared. His work corroborates the results obtained by the smear method of diagnosing rabies. We have tried the impression method which he describes, as well as a number of other methods of making smears of the central nervous system and find the results obtained by them all good in some particulars, but the method we describe has so far given us uniformly better results in the diagnosis work.



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Original Work.

The work may be divided into two parts:

I. The value of the "Negri bodies" in diagnosis and their rapid identification.

II. A study of the "bodies" with a view to determining their nature.

In all, 141 animals, including seven different species, have been studied with these two points in view. The following table gives a classified list of these animals:

Street rabies cases	Dogs	25
	Cat	1
	Human beings	3
Animals inoculated with street rabies	Dogs	7
	Rabbits	12
	Guinea-pigs	32
	Mice	5
Animals inoculated with fixed virus	Dog	1
	Rabbits	27
	Guinea-pigs	7
	Mice	1
Control animals	Dogs	12
	Rabbits	4
	Guinea-pigs	2
	Calf	1
	Human being	1

I.

In the first part of the work we have tried to determine: (1) Whether the "bodies" seen in the smears are similar to those seen in the sections, (2) the correspondence between the smear method, the section method, and the biologic test, (3) the comparative value of each method in diagnosis, and (4) the specificity of the "bodies."

It was decided that these points might be brought out by using all three diagnostic tests in a series of street rabies animals and of a number of controls. Therefore with each animal chosen for this purpose the following routine was carried out: (1) the brain, medulla, and parts of the spinal cord and connected ganglia were removed; (2)

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small pieces from each part were fixed in Zenker's fluid; (3) smears were made from corresponding parts; and (4) animals were inoculated subdurally with an emulsion of corresponding parts, and from the animals that died either smears or sections or both were made.

The technic of the smear work is as follows:

1. Glass slides and cover-glasses are washed thoroughly with soap and water, then heated in the flame to get rid of oily substances.

2. A small bit of the gray substance of brain chosen for examination is cut out with a small sharp pair of scissors and placed about one inch from the end of the slide, so as to leave enough room for a label. The cut in the brain should be made at right angles to its surface and a thin slice taken, avoiding the white matter as much as possible.

3. A cover-slip placed over the piece of tissue is pressed upon it until it is spread out in a moderately thin layer, then the cover-slip is moved slowly and evenly over the slide to the end opposite the label. Only slight pressure should be used in making the smear, but slightly more should be exerted on the cover-glass toward the label side of the slide, thus allowing more of the nerve tissue to be carried farther down the smear and producing more well-spread nerve cells. If any thick places are left at the edge of the smear, one or two of them may be spread out toward the side of the slide with the edge of the cover-glass. If the first smear does not seem to be well spread out others should be made until a satisfactory one is obtained.

4. For diagnosis work such a smear should be made from at least three different parts of gray matter of the central nervous system; first, from the cortex in the region of the fissure of Rolando or in the region corresponding to it (in the dog the convolution around the crucial sulcus), second, from Ammon's horn, third, from the cerebellum. In many of the animals reported here, smears were made from the gray matter of the cerebral cortex, around the fissures of Rolando and Sylvius, from the olfactory nerves, spinal cord in the dorsal and lumbar regions, spinal and Gasserian ganglia, salivary glands, suprarenals, pancreas, and some of the peripheral nerves. From the last four-named structures the smears were not very successful, so only a few were made.



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5. The smears are dried in air,† and subjected to one or both of the two following staining methods:

(a) Giemsa's solution. The smears are fixed in methyl alcohol (commercial is just as good as pure) for about 5 minutes. The staining solution recommended last by Giemsa‡ (1 drop of the stain to every c.c. of distilled water made alkaline by the previous addition of one drop of a 1 per cent. solution of potassium carbonate to 10 c.c. of the water) is poured over the slide and allowed to stand for one-half to three hours. The longer time brings out the structure better, and in 24 hours well-made smears are not overstained. After the stain is poured off, the smear is washed in running tap water for one to three minutes, and dried with filter paper. If the smear is thick, the "bodies" may come out a little more clearly by dipping in 50 per cent. methyl alcohol before washing in water, then the washing need not be as thorough. By this method of staining, the cytoplasm of the "bodies" stains blue and the central bodies and chromatoid granules stain a blue-red or azur. Generally the larger "bodies" are a darker blue than the smaller, the smallest of all may be very light (Plate 19, Journ. Infect. Diseases, 1906). The stain varies somewhat according to the thick-

† This method has proved so practical in our hands that an effort is being made to extend its usefulness.

The Board of Health of New York City has prepared a circular containing a description of the foregoing technic with more explicit directions in regard to the regions from which the smears are to be made with the added information that such smears, as well as the fresh material, may be sent to the nearest laboratory familiar with the appearance of the "Negri bodies" or to the Research Laboratory of the N. Y. Health Department. If the smears have been made successfully and the "Negri bodies" are found, the sender may receive word almost immediately and no sections or inoculations of the material need be made.

‡Azur II—Eosin..... 3.0 g.
Azur II..... 0.8
Glycerin (Merck. chem. pure)..... 250.0 c.c.
Methyl alcohol (chem. pure)..... 250.0

Both glycerin and alcohol are heated to 60° C. The dyes are put into the alcohol and the glycerin is added slowly, stirring. The mixture is allowed to stand at room temperature over night, and after filtration is ready for use.

The solution is prepared ready for use by Grübler, Leipzig.

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ness of the smear. Some have a robin's-egg blue tint but this is after a longer fixation in the methyl alcohol. In this case the red blood cells may have a greenish tint. (See Part II. for full description of "bodies" stained by this method). The cytoplasm of the nerve cells stains blue also, but with a successfully made smear the cytoplasm is so spread out that the outline and structure of most of the "bodies" are seen distinctly within it. The nuclei of the nerve cells are stained red with the azur, the nucleoli a dull blue, the red blood cells a pink-yellow, more pink if the decolorization is used. The "bodies" have an appearance of depth, due to their refractive qualities.

For diagnostic purposes this method of staining may be shortened as follows: Methyl alcohol, 5 minutes, equal parts of the Giemsa solution and distilled water, 10 minutes. In this way "bodies" are generally brought out well enough for diagnosis, and sometimes the structure shows distinctly. It is always well, however, to make smears enough for the longer method of staining, in case the shorter one should prove unsatisfactory.

(b) The eosin-methylene blue method recommended by Mallory. The smears are fixed in Zenker's solution for one-half hour; then after being rinsed in tap water they are placed successively in 95 per cent. alcohol + iodine one-quarter hour, 95 per cent. alcohol one-half hour, absolute alcohol one-half hour, eosin solution 20 minutes, tap water for rinsing, methylene-blue solution 15 minutes, 95 per cent, alcohol for differentiation lasting from one to five minutes; after this they are blotted with fine paper and allowed to dry. With this method of staining, the cytoplasm of the "bodies" is a magenta, light in the small bodies, darker in the larger; the central bodies and chromatoid granules are a very dark blue; the nerve cell cytoplasm is a light blue; the nucleus is a darker blue, and the red blood cells are a brilliant eosin pink. With more decolorization in the alcohol the "bodies" are not such a deep magenta and the difference in color between them and the red blood cells is not so marked.

The "bodies" and the structure are often more clearly defined with this method and perhaps on the whole it is better to use it for making diagnosis; but when there are only tiny "bodies" present, or when the



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brain tissue is old and soft, the Giemsa stain seems to be the more successful; above all, when one wishes to study the nature of the central structures and granules the Giemsa stain must be used. We therefore recommend strongly the use of both methods. Even if both are used and one has to wait for the longer method, the technic is far simpler than any so far published.§§

Not only do the "bodies" come out more distinctly by the smear method, but the pathological changes accompanying them are well demonstrated. For instance, the swellings of the neuro-fibrils described by Ramon y Cajal, the collections of the lymphoid cells, the increase of the endothelioid cells, the degenerated nerve cells are all clearly seen.

The technic of the sction work is as follows: (1) The small pieces are left in Zenker's fluid for three to four hours; (2) washed in tap water for five minutes; (3) placed in 80 per cent. alcohol+iodine (enough tincture of iodine added to give port wine color) for about 24 hours; (4) 95 per cent. alcohol+iodine 24 hours; (5) 95 per cent. alcohol 24 hours; (6) absolute alcohol from four to six hours; (7) cedar oil until cleared; (8) cedar oil+paraffin 52 degrees ãã, two hours; (9) paraffin 52 degrees two hours in each of two baths; (10) boxing; (11) sections are cut at 3 to 6*m*, dried in thermostat at 36 degrees C. for about 24 hours protected from the dust, and stained according to the eosin and methylene blue method recommended by Mallory. The most important point in the technic is the time the material is allowed to remain in Zenker. According to our experience, two hours fixation

§§ Van Gieson working in our laboratory, suggests a staining method which differentiates the "Negri bodies" more quickly than either of the two methods described above. So far, the best proportion of the stains used have not been determined, but satisfactory results have been obtained from the following mixture: To 10 drops of distilled water three drops of a sat. alc. sol. of rose aniline violet and six drops of Loeffler's solution of methylene blue are added. The smears are fixed while moist, in methyl alcohol for one minute. The stain is then poured on, warmed until it steams, poured off, and the smear is rinsed in water and allowed to dry.

The cytoplasm of the "bodies" is a deep and distinctive red or magenta, their inner structures are a dark blue, the nerve cells are a light blue and the blood cells a pale salmon-red.

The staining mixture remains good for about an hour.

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is not enough, three to four hours is very good, and with every hour after five hours the results become less satisfactory. Left in Zenker over night the tissue is granular and takes the eosin stain more or less deeply, both of which results interfere with the appearance of the tiniest "bodies," especially of the very delicate, tiny forms found by us in sections from fixed virus. Another point in favor of the short fixation in Zenker is that the precipitate formed by the mercury is not so great and is more easily got rid of, which is a very great help in the identification of the tiniest forms. Schiffmann recommends short fixation in Zenker, but he does not state the time he finds best.

It is thought, also, that washing for any great length of time in water after fixation does not help the specimens; the few that were left for a much longer time than the five minutes are not as satisfactory as the others.

In regard to the rest of the technic, it is sufficient to say that the changes to the different fluids were made with great regularity, and the final differentiation in alcohol of the stained sections was done most carefully.

In the sections made in this way we have been able to demonstrate clearly very tiny forms as well as good structure in the larger forms, a description of which will be given in Part II.



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TABLE I.

Results of Examination of Rabies Material by Means of Smears, Sections and Animal Inoculations.

Number.	Species.	Date of Autopsy.	Clinical Diagnosis.	Presence of Negri Bodies in Smears.	Presence of Negri Bodies in Sections.	Result of Animal Inoculation.	Presence of Negri Bodies in Smears from Animals Inoculated.	Presence of Negri Bodies in Sections from Animals Inoculated.
		1905.						
1..	Dog	11—10	Rabies	+	..	+	..	..
2..	"	11—23	Rabies	+	+	..	..	..
3..	"	12— 2	Doubtful	+	+	..	..	..
4..	"	12— 4	Rabies	+	+	..	..	..
5..	"	12— 9	Suspicious	—	—	—	..	..
6..	"	12— 9	Suspicious	—	—	—	..	..
7..	"	12— 9	Suspicious	—	—	—	..	..
8..	"	12—15	Rabies	+	..	+	+	+
		1906.						
9..	Dog	1— 4	Rabies	+	+	+	+	+
10..	"	1—10	Rabies	+	+	..	..	..
11..	"	1—18	Doubtful	—	..	—	..	..
12..	"	1—22	Rabies	+	+	+	+	+
13..	"	1—26	Rabies	+	+	+	+	+
14..	"	1—29	Rabies	+	+	..	..	..
15..	"	2—20	Rabies	+	+	+	+	..
16..	"	2—23	Rabies	+	+	+	+	+
17..	"	2—26	Rabies	D'btful*	+†	+	+	+
18..	"	2—26	Doubtful	—	—	—	..	..
19..	"	2—27	Rabies	+	..	+	..	..
20..	"	3— 2	Rabies	+	+	+	+	+
21..	"	3— 3	Rabies	+	+	+	+	+
22..	"	3— 6	Distemper or rabies	+	+	..	..	..
23..	"	3—12	Rabies	+	+	+	+	+
24..	"	3—13	Rabies	+	+	+	+	+
25..	"	3—26	Rabies	+	+	..	..	..
		1905.						
26..	Cat	12— 5	Rabies	+	..	+	..	..
27..	Human	11—10	Rabies	+	+	+	+	..
28..	Child	11—16	Rabies	+	+	+	+	..
		1906.						
29..	Child	1—16	Rabies	+	+	+	+	+

* Brain in bad condition; two days old. † A few tiny "bodies" found.

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TABLE I (Continued).

Number.	Species.	Date of Autopsy.	Clinical Diagnosis.	Presence of Negri Bodies in Smears.	Presence of Negri Bodies in Sections.	Result of Animal Inoculation.	Presence of Negri Bodies in Smears from Animals Inoculated.	Presence of Negri Bodies in Sections from Animals Inoculated.
30..	Human	1— 9	Alcoholic neuritis	—	—	—	..	..
31..	Dog	1— 4	Inoculated with human rabies; no symptoms	—	..	..	..	..
32..	"	1—16	Inoculated with human rabies; no symptoms	—	—	..	..	..
33..	"	1—30	Inoculated with human rabies; typical symptoms	+	+	..	..	..
34..	"	1—31	Inoculated with human rabies; typical symptoms	+	+	+	..	..
35..	"	2— 6	Inoculated with human rabies; typical symptoms	+	+	+	..	..
36..	"	2—15	Inoculated with human rabies; typical symptoms	+	+	+	+	+
37..	"	3— 6	Inoculated with street rabies; typical symptoms	+	..	+	+	+
		1905.						
38..	Calf	11— 5	Normal	—	..	..	..	..
39..	Dog	11—13	Normal	—	..	..	..	..
40..	"	11—14	Normal	—	..	..	..	..
41..	"	11—14	Normal	—	..	..	..	..
42..	"	12— 1	Normal	—	..	..	..	..
43..	"	12— 1	Normal	—	..	..	..	..
44..	"		Normal	—	—	—	..	..

In Table I we have given the results of the animals studied with a view of determining the four points mentioned at the beginning of this section. In some of them the full examination as planned was carried out, in others, besides the smears, only sections or animal inoculations were made. The controls are not as many as we might have made had not so much control work been done previously by us and by so many others.

The results are as follows:

1. No control animal shows appearances similar to the "Negri bodies," either in smears or in sections. The various suspicious cases, especially the case of the dog with filaria, we consider among the best controls, because here we are dealing with animals dead after symptoms similar to those of hydrophobia.



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2. In all of the cases proved by the biologic test to be hydrophobia, "Negri bodies" are found in either smears or sections or in both.

3. In the animals which had been inoculated from these animals, "Negri bodies" are found in either smears or sections or in both.

4. The general characteristics of the "bodies" seen in the smears are similar to those of the "bodies" seen in sections.

5. The three tests correspond as to diagnostic results.

6. The smear method is much better than the section method in demonstrating the "bodies" for diagnostic purposes.

7. When the "bodies" are present in the smears the diagnosis of hydrophobia is certain, even if the biological test is negative. When they are not found the diagnosis is uncertain.

8. In a very few cases of street rabies, only extremely tiny forms are found. These may be easier to find in sections than in smears.

9. In doubtful or negative cases both the section method and animal inoculations should be tried.

In studying the nature of these bodies many points have only been touched upon and others are still being investigated, but we believe that enough new knowledge has been gained to warrant this publication.* The plan of this part of the work is as follows:

1. The comparison of the general characteristics of the "bodies" { in smears. / in sections. / in hanging-drop.

 (a) Size { in different species of animals. / in different animals of same species.
 (b) Shape { in different parts of same animal.
 (c) Number { in different stages of the disease.
 (d) Site { in different numbers of passages.
 (e) Structure { after different modes of inoculation.

2. Detailed characteristics of structure.

 (a) Cytoplasm.

 (b) Central bodies.

*[The Editor regrets being unable to reproduce the plates accompanying the original article. They will be found on page 483 of the "Journal of Infectious Diseases," Chicago, 1906.]

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(c) Chromatoid granules.

(d) Different shapes.

(e) Division forms { transverse. longitudinal. budding.

(f) Conjugation forms.

(g) Stages at which different forms appear.

3. Relation between the time the central nervous tissue becomes infected and the time the bodies appear.

4. Spread of the bodies to different parts of the host.

5. Significance of the bodies and comparison with known organisms.

6. Summary.

1. *General Characterstics of Bodies in Smears Compared with those in Sections: Size.*—The majority of the forms seem larger in smears than they do in sections from the same case. The largest forms measured are about 18 *m* and the smallest structured forms about 0.5 *m*. We can easily see that a form appearing as 0.5 *m* in a smear might scarcely be visible in a section, and that such tiny forms, considering their extreme plasticity (see under structure), might easily pass the coarser Berkefeld filters. We have found that the size varies more with the course of the disease (which includes the question of accustoming the virus to the host (e. g. fixed virus), than it does merely with different species of animals. This means that the bodies may vary greatly in different animals of the same species, in different parts of the same animal, and at different stages of the disease. We may say in general that no very large forms are found in the early stages of the disease or in any stage in certain varieties of especially susceptible animals to which the virus has become accustomed (fixed virus). While in later stages of the disease in animals inoculated with virus from another species, or in varieties of animals that are not fully susceptible to the disease, both large and small forms are found.

We have not yet had the opportunity of examining smears from rabid cattle, so we are not able to corroborate the statement of Negri that the largest forms are found in this variety of animal; but if it holds, it would seem that the reasons for the fact might be that cattle

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are among the less susceptible animals, and that they are generally inoculated with a virus from a different species of animal. Of course, other things being equal, we should expect a certain amount of variation in size and structure of an organism growing in different species of animals, just as we get variations in the same variety of bacteria and of other low forms of life grown in different culture media.

Shape.—The shape of the bodies appears more varied in smears than in sections, due partly to the fact that there is a certain amount of distortion. The distortion, however, is very slight, because within narrow limits of disturbance (i. e., too much or too unequal pressure in making the smears) the bodies are broken up and their identity lost. The principal types of shapes seen in smears are given in Plate 19, Figs. 3 to 56 inclusive, "Journal of Infectious Diseases," 1906, p. 484. The same types of shapes are seen in all varieties of animals studied.

Number.—Generally more bodies are seen in smears than in sections from similar parts of the same case. Since we have learned to identify many tiny bodies, we have found that there are more in all cases, including fixed-virus cases, than have hitherto been reported. In any case we feel that we are able to demonstrate enough forms, or, at least, to account for enough forms, to correspond to the degree of infectivity of the part.

Site.—As is shown in Plate 18, Fig. 2, in the "Journal of Infectious Diseases," 1906, page 484, the topography of the bodies may be well preserved in smears. Their situation in the cytoplasm of the body and branches of the larger nerve cells is well shown. In parts of the smear which are more broken up the bodies may appear as if lying free, and it is these bodies, if the pressure has not been too great, that show the structure best. Such bodies have for the most part been chosen for the photographs (especially 1, 2, 4 and 5). There are often many tiny "bodies" in degenerating nerve cells, but these show better in sections than in smears. The tiny forms which we have seen in the nuclei of the host cells also appear more distinct in sections than in smears.*

* With Van Gieson's new staining method these tiny forms are better differentiated in smears.

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Structure—The principal point in favor of the smear method of examination is that the structure of the bodies comes out so clearly and so characteristically that it is easy to draw a close analogy between it and that of known Protozoa. In the first place, as has been shown by Negri and most of the other investigators, the following fact holds true: Whatever the variety or species of animal infected, the bodies preserve their same general characteristic structure, i. e., a hyalin cytoplasm with an entire margin, and with one or more inner bodies having a more or less complicated and regular structure. This fact alone, that by such an entirely different method of examination the bodies show the same characteristic structure in so many different varieties of animals, is a very strong point in favor of their not being degeneration forms.

In general we may say the same things in regard to the relation between structure of the "bodies" and the variety, etc., of the animal, that we did when discussing size, because their structure varies to a certain extent with their size. The tiny forms, rounded, with a more or less centrally situated chromatin-staining granule, slightly larger forms with three to several such granules (often four), elongated forms with a central chromatin line, and tiny forms in twos or in groups of three or more (Plate 19, Figs. 3-8) are the only types found in fixed virus (with an occasional slightly larger form containing a larger central body and a few tiny granules). The tiny forms found in fixed virus seem to be far more delicate than apparently equally tiny forms seem in other lesions; that is, they take the stain more delicately, the central structure is not so distinct, and the whole body is more easily destroyed by pressure in the former than in the latter case. Hence, it is only in the best made smears that these fixed-virus forms are seen, and then only after the eye has been accustomed to their very delicate coloring and outline.

The forms found in fixed virus animals are the only ones which are better preserved or at least which are more distinctly seen in sections than in smears. This is due probably to their extreme delicacy. The fact that we have found very many forms in all cases (15) of developed fixed-virus infection studied makes it probable that they are present in every case and that they come out better with the technic

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described in Part I. than with the technic followed by other investigators. In regard to their specificity, we would say that we have made few controls for the following reason. As slight alterations in technic seem to interfere with their demonstration, and as, therefore, their non-appearance might not mean that they are not present, large numbers of animals would have to be examined before one could be sure that forms simulating them might not be present in certain cases. The facts, however, that in our four controls and in the first two days after inoculation of a series of ten experimental rabbits (see below for details of this experiment), they are not found, and that when they do appear they possess certain characteristics, in structure, site, and number corresponding to the course of the disease, makes it pretty evident that we are dealing with the specific organism. These bodies have the following characteristics: They are tiny rounded forms, sometimes wavy in outline, as if possessing slight amœboid motion, sometimes elongated, extending along the rim of the host-cell nucleus, or along one of the nerve fibrils, as if moving there; they take a delicate light magenta stain very similar to that taken by the small serum globules in the blood vessels, and it would be difficult, if not impossible, to distinguish some of them from these serum globules, if they were in the blood vessels. Many of the organisms, however, show a small chromatin granule, situated more or less eccentrically, sometimes on the very rim of the body. In the larger forms the granule is large; in the smaller it cannot always be seen (Plate 18, Fig 1, "Journal of Infectious Diseases," 1906). Some of the larger forms show from two to several granules and occasionally there is a body with the definite central body and the small granules about it. In these fixed-virus sections we have found certain tiny bodies in some of the nerve-cell nuclei, especially in the smaller of those cells which show decided degenerative changes of the cytoplasm. These intranuclear forms seem to stand out quite distinctly from the rounded, acid-staining degenerative masses. The latter are not so refractive as the former. The intranuclear forms have not yet been studied sufficiently to allow a decided opinion in regard to their place in the life-history of the organism. They are quite frequent in the olfactory bulbs of guinea pigs after inoculation with rabbit-fixed virus.

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The fact that none of the larger forms of the "bodies" are found in animals dying after fixed-virus inoculations is an added indication that the bodies are not products of degeneration of the host cells.

That the development of only these tiny forms with their simple structure in fixed-virus animals is due to the fact that the special strain inoculated is accustomed to the one variety of host is shown by the result obtained by inoculating the strain into another variety of animal. We have inoculated one dog and several guinea pigs subdurally, and three mice subcutaneously with fixed virus from the rabbit, and in each case (in only one case in mice, as only one of the three died) besides the tiny forms there have been numerous large forms with the characteristic, definite, more or less complicated structure (corresponding to Plate 19, Figs. 17-34, "Journal of Infectious Diseases," 1906). This is contrary to the results obtained by Schiffmann upon inoculating rabbit-fixed virus into dogs. In his cases he could find no bodies whatever. On the other hand, we have had delayed fixed-virus action in one rabbit (inoculated with 2 c.c. of a thin emulsion into the ear vein, with death on the 11th day after typical symptoms of paralytic rabies), and in this animal we found only the tiny delicate forms found in the other fixed-virus rabbits.

In regard to variations in structure at different stages of the disease, most of our study has been made upon animals inoculated with fixed virus, and the forms and structure in these cases seem to be about the same in the early stages as in later ones. It would seem that under these favorable conditions for the organism, it grows and divides so rapidly from the beginning, and infects so many of the host cells, that the animal is overwhelmed before the parasite has a chance to develop the larger forms. The results are different in the animals inoculated with street virus.

We inoculated one series of seven rabbits with street virus from a dog, killed the first animal on the seventh day after, and the others respectively on the 9th, 11th, 12th, 14th, 16th, and 17th days. The results as to number and structure of the bodies are briefly as follows:

Seventh day Rabbit.—In the bodies of the large nerve cell of Ammon's horn and cerebral cortex an occasional tiny form and an occa-

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sional one of the intermediate grades was seen. (Forms corresponding to Plate 19, Figs. 3-16, "Journal of Infectious Diseases," 1906.)

No definite extracellular forms were seen, but neither sections nor smears have yet been studied minutely. This is the earliest day reported for forms found after inoculations with street virus. Negri reports finding them on the 10th day in a dog. In our series of animals those that were allowed to remain alive did not begin to have visible symptoms until the 13th and 14th days.

Ninth-day Rabbit.—Many very definitely structured forms were seen in the large nerve cells of practically all parts of the cerebral nervous system, smears and sections showing equally well. The forms corresponding to Plate 19, Figs. 3-12 were in the majority, those corresponding to Figs. 13-16 in moderate numbers, and those corresponding to Figs. 17-32 occasionally.

Eleventh day Rabbit.—Practically no difference between it and 9th day one.

In the *12th, 14th, 16th,* and *17th day rabbits* the larger forms appeared in gradually larger numbers and many more division forms were seen.

So far most of the study in this series has been made on the earlier stages.

There are no marked differences in the "bodies" found in different parts of the central nervous system of one animal dead 25 days after inoculation into the sciatic nerve. The general histologic lesions are more intense in the cord and there is a larger number of the larger "bodies" there than usual, but the "bodies" in the brain are about the same in number and structure as in animals dying from subdural inoculations.

Appearance of "bodies" in hanging drop.—So far, we have done only enough work with the hanging drop to make us realize that it is an extremely difficult method of study and needs most careful control at each step. There is no doubt that certain forms of the organism can be recognized; but the nerve tissue elements change so quickly, assuming flagellated and delicately granular forms which simulate those of known organisms that the control must be at one's side before one realizes that the object studied is not a living organism.

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Detailed Characteristics of Structure—In smears as well as in sections, the *cytoplasm* appears quite homogeneous; there is no evidence of a reticulum, or of a granular structure outside of the definite chromatoid granules. The smears, however, have brought out one important point in regard to the cytoplasm more clearly than the sections, and that is that it is more basophilic than acidophilic in staining qualities. With the Giemsa stain, as we have seen in Part I., it takes the methylene-blue stain more than the eosin-red, and even with the simple cosin methylene-blue stain the protoplasm appears as a deep magenta unless much decolorized.

One of the points, then, which has been brought up against the protozoan theory falls to the ground. The cytoplasm takes the stain as does that of many well-known protozoa—the malarial organism, for instance.

In studying the *central bodies* of these organisms, as they appear in the smears, one of the first things noticeable is that they are not surrounded by a clear space—that there is no sign of a vacuolar appearance in the whole body. This is a very different appearance from that given in the sections, and it shows that the vacuoles described in the sections are artefacts due to the technic. We notice next that in the great majority of the organisms the central body stands out clearly, as decidedly different in structure, and slightly so in staining qualities, from the chromatoid granules which surround it. The general type of the structure of the central body is that of well-known protozoan nuclei; for example, Prowazek gives a description of the nucleus in certain stages of the *Plasmodiophora brassicae,* which might be used here to describe the most typical appearance of these central bodies.

The chromatin is arranged in a more or less granular ring around the periphery of the central body or nucleus leaving an achromatic or more acid-staining center in which is situated, generally eccentrically, a varying-sized karyosome (Plate 19, Fig. 37, "Journal of Infectious Diseases," 1906). There are a number of variations from this principal type, according to stage of development. Often the whole nucleus answers to the description of the compound karyosome given by Calkins in his description of the protozoan nucleus. In the tiny "bodies" the chromatin can only be seen as a dot; in those a little larger



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it may be a large solidly staining granule, or a ring or rod, the latter often hour-glass shaped. In forms large enough for the characteristic structure to be developed and to be clearly seen, the central body may show evidence of fragmentation (Plate 19, Figs. 18, 38, 51, etc., "Journal of Infectious Diseases," 1906). Just such evidence of fragmentation is shown in many protozoan nuclei preparatory to division. It is interesting that forms showing this phase, and, moreover, very similar in general appearance to some of the forms seen here, have been depicted by Doflein in the early stages of the life-cycle of *Glugea lophii*, a myxosporidium, parasitic in the ganglion cells of a fish (*Lophius piscatorius*).* The staining of the nucleus will be considered with that of the chromatoid granules.

The chromatoid granules are most frequently arranged in a more or less complete circle about the nucleus. They are somewhat irregular in outline and size, being occasionally ring-shaped, sometimes elongated, often in twos, due probably to active changes of growth and division. They take generally a more mixed chromatin stain than the chromatin of the nucleus. This fact is brought out in the Giemsa-stained smears. Here the nuclear chromatin takes generally a definite azure tint, while the chromatoid granules are more of a blue, though sometimes they may appear more red. That the red in the central body and granules is not an eosin-red, is shown first by its peculiar magenta tint, and second by the fact that when partly decolorized by methyl alcohol, the red color disappears from these structures leaving them a dark blue, while the cytoplasm is a pale blue-pink and the red blood cells are a definite eosin-pink. If a dilute methyl alcohol is used, an interesting series of differentiations in color may be obtained. Such a more or less regular arrangement of chromatoid granules in the cytoplasm of Protozoa is of frequent occurrence (Calkins, Minchin). It is a marked feature, according to the observations of one of us, in certain stages of the *Plasmodiophora brassicae*. The further changes in the central bodies and granules will be considered under division forms.

* In Doflein's later classification (1901) he names this species Nosema lophii and places it in the sub-order Microsporidia under the order Cnidosporidia.

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Different Shapes.—We agree with Negri in considering many of the different shapes due to the position of the organism in the host cell. There is no doubt that the substance of these bodies is extremely delicate and plastic, easily adapting itself to the position in which it is found and easily destroyed by artificial means. Many of the elongated forms are forms growing and dividing in this way because of position between the fibrils. The triangular forms (Plate 19, Figs. 26, 50, and Plate 21, Fig. 7, "Journal of Infectious Diseases," 1906) are probably forms that have grown in the angle made by the giving off of a nerve cell branch. They have been placed by us, in Plate 19, underneath the much elongated forms as possible division forms of the latter; but they probably are not. The principal cause of most of the different shapes, however, is the rapid growth and division of the organism.

Division Forms.—The whole picture is one of rapid growth and multiplication, and this corresponds with the clinical history. The elongated forms containing from two to five or even six nuclei are the result of rapid nuclear division without corresponding cell division. This condition is found quite frequently in Protozoa ("*Thelohania mulleri*," Minchin, p. 292). The elongation in this way is probably due, as we have said, to the position of these bodies between the nerve fibrils, and to their great plasticity.

Under the most favorable conditions (fixed virus), growth and division occur most rapidly and simply, the tiny forms dividing and redividing apparently indefinitely. Whether there is simple conjugation, or fusion of unequally divided forms during this condition, it is difficult to say. It would probably take much study to settle this question. Small mulberry masses are found during this stage, but whether they are the result of the breaking up of a larger form or of the rapid division of a tiny form it is impossible for us to say as yet. We have also seen appearances which suggest plasmodial phases. There seems to be distinct evidence of an intranuclear invasion also in fixed-virus infection.

In cases where there has been an inoculation of comparatively small quantities of the virus, i. e., a small number of forms of the parasite capable of immediate infection, or in cases where there has been an infection of less susceptible animals (dogs, cattle, human beings, etc.),



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or with a less accustomed virus (fixed virus or rabbits into guinea pigs or mice), we get a slower growth, with its larger structures and different division forms. The chromatin accumulation in the form of a definite nucleus, apparently undergoes fragmentation very easily, and so we have forms containing two to several central bodies, some rounded (Plate 19, Figs. 12, 13, 14, 19, etc., "Journal of Infectious Diseases," 1906), some elongated (Fig. 15), some of unequal division, similar to budding (Fig. 29). Then we find forms with bodies apparently differentiated within one membrane (Figs. 20, 31, 53), and bodies with practically all stages of hour-glass constriction, indicating transverse division (Fig. 32). Many pairs, unequal in size, apparently fusing or dividing have been seen (Figs. 33, 45), and finally, we have large bodies with the chromatin scattered throughout the whole organism in the form of tiny, unevenly rounded or elongated masses, one or two larger, indicating the remains of the nucleus, and in these forms we get all stages of apparent budding (Figs. 40, 41, 42, 54, 55). The buds vary somewhat in size, some being very tiny. The formation of buds accounts for the appearance in the same cell of both large and small forms. It also helps to account for the rapid spread of the organisms. These tiny budded forms similar to "swarm spores" are probably motile and pass quickly to other host cells.

We have also found a number of more or less indefinite masses, taking the stain a little more deeply than the other bodies, and apparently made up of large numbers of tiny bodies, but so far they have been too indefinite for us to be sure that we have cystlike structures. We have not studied the sections minutely enough yet to find out how such structures appear there, or whether they are similar to the "cysts" described by Negri.

Conjugation Forms.—At first sight "the buds" were thought by us to be possibly conjugating individuals, but when on further study they were found to be principally, if not entirely, in forms which showed marked fragmentation of the chromatin, they were interpreted as budding forms. Such unequal forms as are represented in Plate 19, Figs. 33 and 45, may be conjugating forms, but so far we have not been able to decide as to their significance.

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The relation between the time the central nervous tissue becomes infective, and the time the bodies appear.—Our principal work on this point has been done with fixed virus. After finding that tiny, characteristic forms were found in two rabbits dying on the eighth and ninth days after subdural inoculation with fixed-virus, we inoculated 10 rabbits subdurally with fixed virus (629th passage), killed one every day by chloroform, and examined the central nervous system in the following way: One-half of the brain and medulla, including the olfactory bulb, was cut into slices, and with slices from the dorsal and lumbar spinal cord, including one or two spinal ganglia, was placed in Zenker, and subjected to the technic for sections mentioned in Part I. From the other half of the brain, and corresponding parts of the cord, two sets of smears were made, and each stained respectively by the two methods mentioned in Part I. Unfortunately, with this series of animals, we did not test the virulence of the nerve tissues, so we do not know at exactly what period it became distinctly virulent. However, in an earlier series of eight rabbits inoculated in the same way, and from which only smears were made, Dr. Poor tested the virulence roughly, as follows: One animal was killed each day, with the exception of the eighth, which died on the ninth day. From the lumbar cord, and from Ammon's horn, pieces of about the same size, so far as we could judge from eye measurement, were cut. Two dilutions were made from each piece, a stronger one, by the addition of 3 c.c. of normal salt solution, making an emulsion; and a weaker one, by making a 1:1,000 dilution of the stronger. Two guinea pigs were inoculated with the weak dilution ½ c.c. each; two with the strong dilution, ½ c.c. each.

Of the animals inoculated with the weak dilutions of the *cord,* none died; of those inoculated with weak dilutions of the *brain,* none died from the first or second day rabbits, one died from the third day, and one from the fourth day animal, none from the fifth day, one from the sixth day, two from the seventh day, and none from the ninth day animal. Of the animals inoculated with the strong dilutions of the *cord,* none died from the first, second, third, and fourth day rabbits; one from the fifth day, one from the sixth day, and none from the seventh day animal. Eighth and ninth day animals were not inoculated. Of

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the animals inoculated with the strong dilutions of the *brain,* none died from first and second day rabbits, two died from the third, fourth, fifth, sixth, and seventh day rabbits, eighth and ninth day animals not inoculated.

In this experiment, then, the weak dilution of the *cord* was not infective in the doses used; the strong dilution was not infective until the fifth day, and then not regularly so; while both dilutions of the *brain* became infective on the third day, the weaker one less so, and continued so to the end. These results corroborate the work of Remlinger, who found the medulla virulent on the third or fourth day after subdural inoculations of fixed virus.

In neither of these sets of experiments has the approximate number of organisms present been shown, and until we know this we cannot say that in any measured amount of infective material there may be more than an occasional tiny form, which it might be very difficult, perhaps impossible, to find in sections or smears of such material.

In the examination of the 10 rabbits mentioned first in this connection, although we have so far studied only a comparatively few sections, we have found the bodies appearing as follows: On the first and second days none; on the third day an occasional one in the large lymphoid cells of the perivascular lymph spaces at the base of Ammon's horn; on the fourth day, a few tiny undoubted ones in the large nerve cells of the olfactory bulb, of the lower curve of Ammon's horn, and of the motor area of the cerebral cortex; on the fifth, a moderate number in the same areas and in scattered cells throughout the whole brain; on the sixth, many in the same areas, and in the medulla; on the seventh two animals), on the eighth, and on the ninth, very many, as in the other fixed-virus animals studied (Plate 18, Fig. 1, "Journal of Infectious Diseases," 1906).

From this series of experiments it seems that the bodies may be found soon enough and in practically large enough numbers to account for the beginning infectivity of the nerve tissue, and that with only a little more careful experimenting this may be brought out clearly.

Four control rabbits were studied in this connection; two normal rabbits, one which had died from pneumococcus infection, and one from yeast infection.

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Spread of the bodies to different parts of the host.—This point is now being studied by us. It is taken up under two heads; first, the spread of the organisms from the point of inoculation, and second, its spread from the site of infection.

In whatever way the virus enters the body, so far as we know, there is no development of the organism, or none, to any appreciable extent, until it reaches the central nervous system, and not until after a certain amount of development there does it infect the peripheral organs. Before the disease was well studied it was thought that the salivary glands were the chief site of the infection. But it has been shown that these glands are not always infective, and when they are, not until comparatively late in the disease and that when the virus is inoculated into them, the animal seldom comes down with the disease and probably never if the centripetal nerves are cut (Bertarelli). This means that the parasite does not grow in the salivary glands, that it is only carried there incidentally by its spread from the central nervous system along the nerve branches. That the organisms escape into the blood and are carried in this way in small numbers is shown by the fact that the blood in large quantities has been found infective (Marie). Principally by the nerve channels, secondarily by the blood and lymph channels, the organisms are carried in small numbers to all parts of the body. With other investigators, we have found the suprarenal capsules infective (in one out of two street-rabies dogs). One of the three guinea pigs inoculated died after typical symptoms of rabies, and the central nervous system showed many good-sized bodies and was infective for other animals. If it is true that the organisms pass in such comparatively small numbers to the various peripheral organs, and especially if only the smaller forms pass, then our chances of identifying them in the salivary and other glands are very slight. Smears from these parts are unsatisfactory, and we have not yet been able to study the sections.

In regard to the spread of the organisms from the point of inoculation, the parasites are probably carried to the central nervous system along channels similar to those by which they are carried away, and unless enough of them can quickly reach the nerve cells, they are probably destroyed by the macrophages. We have found, as we have

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said, what appear to be tiny bodies in the large lymph cells on the third day after inoculation with fixed virus. In one fixed-virus rabbit, found dead on the morning of the seventh day after inoculation, an animal which had been used before, and whose resistance was probably lessened, the central nervous system was loaded with large lymphoid cells many of which were apparently filed with tiny organisms. This question is still being studied.

Significance of the "bodies" and comparison with known organisms.—Although it may be questioned whether enough forms have been found to account for every stage in a life-cycle, it is certain that the great majority of the bodies stand out so clearly as organisms with such definite, constant, characteristic structure and staining reactions and show so many forms similar to division forms of known Protozoa, that the picture is difficult to explain in any other way than as that of a developing organism belonging to the group Protozoa. It seems unnecessary further to consider the possibility of their being changed red blood cells or any other form of degeneration of the host tissue; and this alone is evidence in favor of their being organisms.

From time to time cases have occurred in which the "bodies" are seen in such numbers and in such stages of development that we are as sure of their being organisms as we are that the bodies photographed by Wright from Delhi boil, are organisms. As we study the picture further and find at almost every step analogies in the life-cycle of known Protozoa, the evidence is so overwhelming that there seems no reason to doubt that they are living organisms; the small single forms with their tiny chromatin central bodies rounded, elongated, or in twos and more, as in *Nosema lophii* and other Microsporidia (Doflein); the groups of small forms in twos and more (multiplicative reproduction of Doflein); the appearances of the central body in the larger forms similar to that of many protozoan nuclei at corresponding stages of development (Calkins, Prowazek); the many evidences of division of these larger forms such as fragmentation of the nucleus (Calkins), two nuclei, all stages of hour-glass constriction of the body; and finally, the distribution of the nuclear material throughout the whole organism with evidences of its fragmentation and of budding, a phenomenon which has been described as occurring in all classes of

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Protozoa (Calkins, Minchin)—all these and more make a collection of evidence which amounts to proof.

The parasite seems to possess more points of resemblance to organisms belonging to the sub-order Microsporidia, than to those of any other order.

SUMMARY AND CONCLUSIONS.

1. The smear method of examining the Negri bodies is superior to any other method so far published for the following reasons: (*a*) It is simpler, shorter, and less expensive; (*b*) The Negri bodies appear much more distinct and characteristic. For this reason and the preceding one, its value in diagnostic work is great; (*c*) The minute structure of the Negri bodies can be demonstrated more clearly; (*d*) Characteristic staining reactions are brought out.

2. The Negri bodies as shown by the smears as well as by the sections are specific to hydrophobia.

3. Numerous "bodies" are found in fixed virus.

4. "Bodies" are found before the beginning of visible symptoms—i. e., on the fourth day in fixed virus, on the seventh day in street virus, and evidence is given that they may be found early enough to account for the appearance of infectivity in the host tissues.

5. Forms similar in structure and staining qualities to the others, but just within the limits of visible structure at (1,500 diam. magnification) have been seen. Such tiny forms, considering the evidence they give of plasticity, might be able to pass the coarser Berkefeld filters.

6. The Negri bodies are organisms belonging to the class Protozoa. The reasons for this conclusion are: (*a*) They have a definite, characteristic morphology; (*b*) This morphology is constantly cyclic, i. e., certain forms always predominate in certain stages of the disease, and a definite series of forms indicating growth and multiplication can be demonstrated; (*c*) The structure and staining qualities as shown especially by the smear method of examination resemble that of certain known Protozoa, notably of those belonging to the sub-order Microsporidia.

7. The proof that the "Negri bodies" are living organisms is sufficient proof that they are the cause of hydrophobia; a single variety

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of living organisms found in such large numbers in every case of a disease, and only in that disease, appearing at the time the host tissue becomes infective in regions that are infective, and increasing in these infective areas with the course of the disease can be no other, according to our present views, than the cause of that disease.

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THE ELECTRICAL CHARGE OF TOXIN AND ANTITOXIN.

By Cyrus W. Field and Oscar Teague.

Soon after the discovery of diphtheria antitoxin, several investigators attempted to convert diphtheria toxin into antitoxin by the electrical current, and some went so far as to suppose that this method would supersede the costly and time-consuming process of immunizing animals. Smirnow [a] inoculated rabbits with half a cubic centimeter of a two to three days old broth culture of diphtheria bacilli, and twenty-four hours later, when the animals were sick, injected 10 cubic centimeters of the anodal fluid, obtained by passing a current for eighteen hours through diphtheria toxin. According to him, the animals were saved by the injections. Bolton and Pease [b] stated that two cubic centimeters of the anodal fluid obtained from diphtheria toxin neutralized ten minimal lethal doses of the toxin. It is a well-established fact that acids destroy diphtheria toxin more readily than alkalies, and hence it is to be considered that it was the acid at anode which in Bolton and Pease's experiments neutralized the toxin. The latter investigators believed that the electric current caused a rearrangement of the constituent atoms of the toxin molecule, so that antitoxin resulted; but they did not determine whether the toxin molecule moved with or against the current by virtue of the charge which it carried.

The first to undertake the determination of the electro-positive or electro-negative nature of diphtheria toxin and antitoxin was Römer [c]. Römer used a U-shaped tube and allowed the electrodes to dip into the toxin and antitoxin to be investigated. After the current had been passed for a stated interval of time, the fluid was pipetted from both branches of the tube simultaneously and tested on guinea pigs for toxic or antitoxic properties. The results were entirely negative, since he was unable to determine whether the toxin or antitoxin particles traveled toward the cathode or anode. This failure was due primarily, we believe, to the destruction of the toxin and antitoxin by the products of electrolysis, brought about by the strong current employed, for

a Smirnow, *Berl. klin. Woch.*, 1892, xxxii, 645.

b Bolton and Pease, *Jour. of Exper. Med.*, 1896, i, 537.

c Römer, *Berl. klin. Woch.*, 1904, xli, 209.



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Römer states that he used oil to get rid of the bubbles at the electrodes. Furthermore, the method of simultaneous pipetting very likely caused some mixing of the different portions of the fluid.

To avoid these errors in technique and to eliminate the effects of electrolytic products, we first used a modification of Bilitzer's cells, as shown in Figure 1. The cells and connecting tubes were of glass;

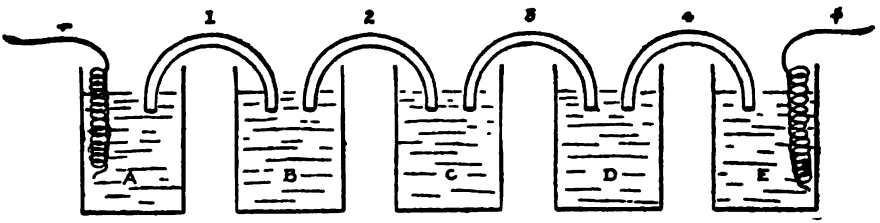


FIG. 1.

the electrodes consisted of coils of platinum wire. The cells *A, B, D* and *E* were filled with distilled water, which was brought to the same level in all of them by means of water-filled connecting tubes. The central cell, *C,* was then filled to a slightly lower level than the others with the toxin or antitoxin to be tested. The small connecting tubes 1 and 4 being in place, and the direct lighting current turned on, the tubes 2 and 3 were filled with distilled water and simultaneously placed in position, thus completing the circuit. After the current had been passed for the desired length of time, the connecting tubes 2 and 3 were removed at the same moment, care being taken that they remained filled. Then 1 and 4 were removed. Under the influence of the current, the fluid in *A* became alkaline, that in *E,* acid, while *B* and *D* remained almost neutral. Hence, only the fluid in the two latter cells was tested on guinea pigs for toxic or antitoxic value. The results were unsatisfactory and contradictory, probably owing to the fact that some of the test fluid passed into the neighboring cells along the outside surface of the connecting tubes, being drawn up by capillarity. When we used longer connecting tubes, the internal resistance became too great for the passage of an appreciable amount of current. This method was therefore discarded.

The following apparatus yielded decisive results. Two semicircular glass tubes, each 1 cm. in diameter and 20 cm. long, were filled

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with melted agar (2 per cent. agar in distilled water) and allowed to cool to the temperature of the room. These were then arranged as in Figure 2, the same platinum electrodes being used as in the previous experiments. The toxin or antitoxin to be tested was placed in the middle beaker, distilled water in the other two. The direct Edison

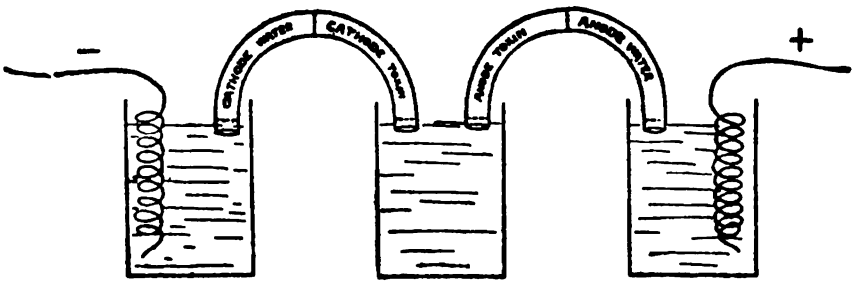


FIG. 2.

street lighting current, 110 volts, was passed for from four to five hours [d], the distilled water in the end beakers being siphoned off and renewed every half hour to eliminate the disturbing influence of the products of electrolysis. The agar tubes were now removed and the ends thoroughly rinsed in distilled water. The agar mass was then forced from that portion of the tube which dipped into the toxin or antitoxin out through the other end. About a quarter of an inch was removed from each end of the mass and discarded; the remainder was divided approximately in half. Each of these portions was rinsed in distilled water, chopped into fine pieces, and allowed to stand for one hour in about 6 c.c. of distilled water. At the end of this time the agar was removed by filtering through gauze, and the filtrate was tested on guinea pigs for toxic or antitoxic properties. The accompanying table gives the results of these experiments.

d The current was passed for only four or five hours because the risk of a disturbance due to products of electrolysis increased with the time; moreover, Bredig, Hardy, Pauli, and others found that the passage of a current for twenty-four hours or more would often cause a reversal of the charge carried by particles which would then necessarily be driven back in the opposite direction, thus obscuring the nature of the charge which they originally carried.

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TABLE I.

Substance Tested by Passage of Electric Current.	Acidity or Alkalinity.	Cathode Water.	Cathode Toxin or Antitoxin.	Anode Toxin or Antitoxin.	Anode Water.
Diphtheria toxin.....	Acid.....	No reaction.	† In 20 hours.	No reaction.	No reaction.
	Alkaline...	No reaction.	† In 28 hours.	No reaction.	No reaction.
Tetanus toxin.....	Acid.....	No reaction.	† In 48 hours.	No reaction.	No reaction.
	Alkaline...	No reaction.	† In 40 hours.	No reaction.	No reaction.
Diphtheria antitoxic serum. Tested against 35 M.L.D.'s.	Acid.....	Protected.	Protected.	† In 22 hours.	† In 24 hours.
	Alkaline...	Protected.	Protected.	† In 42 hours.	† In 38 hours.
Diphtheria antitoxic globulins. *e* Tested against 35 M.L.D.'s.	Acid.....	† In 36 hours.	Protected.	† In 36 hours.	† In 36 hours.
	Alkaline...	† In 24 hours.	Protected.	† In 36 hours.	† In 36 hours.
Tetanus antitoxic serum. Tested against 35 M.L.D.'s.	Acid.....	Protected.	Protected.	† In 50 hours.	† In 68 hours.
	Alkaline...	Protected.	Protected.	† In 48 hours.	† In 48 hours.
Normal broth. No toxin.....	Acid.....	No reaction.	No reaction.	No reaction.	No reaction.
	Alkaline...	No reaction.	No reaction.	No reaction.	No reaction.
Normal Horse serum. No antitoxin. Tested against 35 M. L. D.'s.....	Acid.....	† In 36 hours.	† In 36 hours.	† In 36 hours.	† In 36 hours.
	Alkaline...	† In 40 hours.	† In 42 hours.	† In 40 hours.	† In 40 hours.
Test without the electric current Diphtheria toxin Diphtheria antitoxin. Tested against 35 M. L. D.'s.....		Water-half negative, † in 40 hours.		Toxin-half negative, † in 41 hours.	

The first .5 cm. of the agar dipping into the toxin or antitoxin was removed, as was always done in our experiments with the electric current. There was always a slight trace of toxin or antitoxin in the first half centimeter, but it was never found beyond this point. A similar phenomenon was observed by Flexner and Noguchi, *f* in relation to the diffusion of tetanus toxin into agar.

In order that the table may be more readily understood, a detailed explanation of one of the experiments (No. 6, for example) contained in it may not be superfluous.

Diphtheria antitoxic serum was made slightly alkaline to phenolphthalein by the addition of a small amount of 0.1 normal sodium hydrate. The agar tubes were placed in position, as in Figure 2, and the current was passed through it for four hours. The four portions of agar, which we shall designate as cathode water, cathode-antitoxin, anode water, and anode-antitoxin, were then cut into fine pieces and extracted in water for one hour, and to each of these ex-

e Gibson, *Jour. of Biol. Chem.*, 1905, i, 161.

f Flexner and Noguchi, *Jour. of Exper. Med.*, 1906, viii, 547.

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tracts was added 35 m. l. d. of diphtheria toxin. These four portions of fluid were now injected subcutaneously into the abdominal walls of four guinea pigs each weighing about 250 grams.

The two guinea pigs receiving the fluid from the anode water and anode-antitoxin portions of agar died in thirty-eight and forty-two hours, respectively; hence, these portions must have contained no antitoxin. Those receiving the fluid from the cathode water and cathode-antitoxin portions showed no induration at the point of injection and no loss of weight for five days, after which they were discharged. Hence, they were fully protected against the 35 m. l. d. of toxin.

The table shows that under the influence of an electric current, the particles of both toxin and antitoxin travel toward the cathode, and that a change in the reaction of the solvent does not cause a reversal of the charge carried by the particles.

Biltz, Much and Siebert [g] claim that both tetanus toxin and tetanus antitoxin are precipitated by electro-positive inorganic colloids and conclude, therefore, that they are electro-negative and should, under the influence of an electric current, pass toward the anode. However, neither they nor Römer were able to demonstrate this fact experimentally. It is probable that the precipitates which they obtained were due either to the action of electrolytes contained in the toxin or antitoxin on their inorganic colloids, or to the action of these colloids on non-toxic or non-antitoxic protein substances, or to a combination both. It is worthy of note that their non-toxic broth gave precipitates with practically the same inorganic colloids as did the toxin.

Hardy [h] states that proteins are amphoteric; that is, that in an acid medium they travel toward the cathode and in an alkaline medium toward the anode, while in a neutral medium they do not move toward either pole. He worked with an albumen coagulated by heat. Pauli [i], using a protein solution obtained by dialyzing serum from eight to ten weeks and filtering off the euglobulin, found, in agreement with Hardy, that the protein was electro-positive in an acid solution and electro-

g Biltz, Much and Siebert, *Beit. zur exper. Therapie*, 1905.

h Hardy, *Jour. of Physiology*, 1899, xxiv, 288.

i Pauli, *Hofmeister's Beit.*, 1906, vii, 531.



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negative in an alkaline one[j]. We have shown that alteration of the reaction of the solvent does not change the character of the charge carried by particles of toxin or antitoxin. If proteins are amphoteric, as is generally believed, then this observation of ours would point to the non-protein nature of toxin and antitoxin. In one series of experiments, however, we have found that the portion of agar containing the toxin or antitoxin, that is, the cathode portion, was the only one to give the biuret reaction and this occurred when the test substance was in either an acid or an alkaline solution. If experiments which we have under way should verify the last results, it would indicate that native proteins may not be amphoteric and then the argument that we have advanced as to the non-protein nature of toxin and antitoxin would be invalidated[k].

If the combination of toxin with antitoxin is a true chemical reaction, one would expect that under the influence of an electric current toxin would travel in one direction and antitoxin in the opposite direction. Such, however, was not found to be the case and we are, therefore, inclined to believe that this union is not a true chemical reaction, but a matter of adsorption, as was first suggested by Bordet, and has since been claimed by others.

Conclusions.

1. Both diphtheria and tetanus toxin and their antitoxins are electro-positive, that is, they pass to the cathode under the influence of an electric current.

2. The character of the charge is not altered by a change in the reaction of the solvent.

3. The combination of toxin and antitoxin would seem to represent not a true chemical reaction but the adsorption of one colloid by another.

j Pauli denaturalized his proteids by the prolonged dialysis.

k Oppenheimer (Toxin und Antitoxin, 1903) in summing up the work on this subject concluded that toxin and antitoxins are of non-protein nature. Quite recently Osborn, Mendel and Harris (*Amer. Jour Physiol.*, 1905, xiv, 259), working with ricin, have taken issue with him, having found that their purest product still gave protein reactions. As a matter of fact, nothing definite is known at present of the chemical nature of these various substances.

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THE ELECTRICAL CHARGE OF THE NATIVE PROTEINS AND THE AGGLUTININS.

By CYRUS W. FIELD and OSCAR TEAGUE[a].

In a previous paper[b] it was shown that the particles of both toxin and antitoxin wandered under the influence of an electric current toward the cathode and that the reaction (acidity or alkalinity) of the solvent did not influence the direction of migration. Since Hardy[c] and Pauli[d] demonstrated that the proteins which they used were amphoteric, *i. e.*, that they pass toward the anode in an alkaline medium and to the cathode in an acid one, there has been a tendency to generalize by assuming that all proteins behave in this manner. If such were the case, we pointed out, it would follow from our experiments that toxin and antitoxin are not true proteins. At the same time, however, we mentioned that from the few experiments in which this question had been considered, the protein matter of the broth or serum seemed in every instance to travel with the toxin and antitoxin toward the cathode. Further experiments have confirmed this result. It was also shown that the protein of normal horse serum and of non-toxic broth travels toward the cathode. Hence our work offers as yet no evidence either for or against the view that toxin and antitoxin are non-protein in nature.

We maintain that the results which Hardy and Pauli obtained, working with denaturalized proteins, are in nowise applicable to the native proteins, but that the latter carry a distinct electrical charge and are not amphoteric. We are here in accord with Iscovesco[e] and his coworkers, who investigated the charge of colloids contained in various body fluids. Their method consisted in treating the fluid with electronegative (arsenic sulphide) and electro-positive (ferric hydrate) inorganic colloids and their conclusions were based upon the fact that colloids of opposite sign when brought together form precipitates. Thus they found that the peritoneal fluid of the horse contains only electro-

[a] Assisted by a grant from the Rockefeller Institute for Medical Research.

[b] Field and Teague, *Journal of Exper. Med.*, 1907, viii; also p. 50, this volume.

[c] *Jour. of Physiol.*, 1899, xxiv, 288.

[d] *Hofmeister's Beit.*, 1906, vii, 531.

[e] *Compt. rend. Soc. Biol.*, 1906, lxi, 195, 355, 378, 470, 568.



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positive colloids, while the pericardial fluid contains those of both signs; that blood plasna contains both positive and negative albumins with positive and negative globulins, whereas the serum contains only the positive globulin along with albumins of both signs; that the fluid of a tubercular abscess deprived of its leucocytes contains only electronegative colloids; that the amniotic fluid contains both positive and negative albumins, but only negative globulins. From these experiments Iscovesco concludes that there are no colloids which do not bear a distinct electrostatic charge.

Since our method gave no indication of the presence of an electronegative albumin in normal serum, we are inclined to believe that Iscovesco by his manipulations produced a change in sign of the charge carried by certain proteins and that all of his findings are therefore not applicable to the proteins originally present in the fluids he investigated.

In our previous work with tetanus toxin we investigated only the tetanospasmin and its antibody; we have since shown, by testing the agar extracts for their lytic or antilytic action on horse cells, that both tetanolysin and antitetanolysin travel toward the cathode under the influence of an electric current. Having determined the electrical charge of toxin and antitoxin, we next applied the same method to an investigation of the agglutinins.

The agar was divided into one centimeter lengths; the agglutinin was found to have traveled seven centimeters into the cathode agar, the anode agar remaining free of agglutinin. The first centimeter length was extracted with five cubic centimeters of water and this extract would still agglutinate at a dilution of 1-100.

The specific agglutinins investigated travel toward the cathode. These results are diametrically opposed to those of Biltz, Much and Siebert[f], who are the only workers, so far as we know, who have investigated this subject. They passed a current through lacto-serum contained in a U-shaped tube for from one-half to one hour, and found that the fluid around the anode agglutinated at 1-20, that around the cathode not at all, and that from the middle of the U-shaped tube at

[f] *Zeit. fur diatet. und physikal. Ther.*, 1905, viii. 19.

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1-8. Normally the serum agglutinated at 1-4. They state that after the passage of the current the fluid from around the anode was 1-10 normal acid. We would expect this amount of acid to agglutinate at approximately 1-20, since 1-200 represents about the flocking limit of hydrochloric acid for bacteria.

As stated in a previous article, we took special precautions to eliminate the products of electrolysis. However, to show conclusively that it was the specific agglutinin, and that alone, which was responsible for the agglutination in our experiments, the extracts were also tested against other bacilli than those which were agglutinated by the serum under investigation.

TABLE I.

Strength of Electric Current 110 *Volts;* ½ *to* 1 *Milli-ampere.*

Serum agglutinating the typhoid bacillus at 1/2000. Current passed for six hours.

Organism.	Cathode Agar cm. Lengths.											Anode Agar.	
	1	2	3	4	5	6	7	8	9	10	11-20	1-10	11-20
B. typhosus	+++	+++	+++	+++	++	++	+	o	o	o	o	o	o
B. coli	o	o	o	o	o	o	o	o	o	c	o	o	o
Shiga's bacillus	o	o	o	o	o	o	o	o	o	o	o	o	o
Paratyphoid b	o	o	o	o	o	o	o	o	o	o	o	o	o
Biuret reaction	+	+	+	+	+	+	trace						

NOTE—As one centimeter lengths of the anode agar showed no agglutinin in repeated experiments we have here tested extracts from ten centimeter lengths.

If the agglutination were due to the presence of products of electrolysis we would expect the other bacilli to be agglutinated as well as typhoid. Such, however, was not the case. Hence, we believe that we have shown conclusively that the agglutinins travel toward the cathode.

It has been shown by Bechtold [g], and by Buxton, Schaeffer, & Teague [h], and by others, that bacteria move toward the anode under the influence of an electric current, that is, they carry a negative charge [i]. Our findings with regard to the agglutinins are therefore

g Zeit. Physik. Chem., 1904, xlviii, 385.

h Ibid., 1906, lvii, 47.

i Cernovodeanu and Henri (*Compt. rend. Soc. de Biol.*, 1906, lxi, 200) claim that dysentery bacilli travel toward the cathode but we have not found this to be the case.

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especially interesting, since it shows that in the phenomenon of agglutination we have the combination of an electro-negative suspension with an electro-positive colloidal solution. Since ions of opposite sign are essential for a chemical reaction, and colloids of opposite sign when brought together form precipitates, our results harmonize with both the chemical and the colloidal view of the phenomenon.

Bacteria which have been saturated with agglutinin and then washed in a number of changes of water until the wash water contains no more agglutinin were placed in the cell, and after eight hours the agar was tested for agglutinin. A small amount was found in the cathode agar showing that under the influence of the electric current the agglutinin-bacteria combination was dissociated and that the agglutinins passed to the cathode. Bacteria have been dissociated from agglutinins by other means[j], but so far as we are aware, this is the first time that dissociation has been effected by means of the electric current.

Conclusions.

1. Tetanolysin and antitetanolysin travel toward the cathode under the influence of an electric current.

2. The specific agglutinins are electro-positive.

3. The proteid matter of serum is not amphoteric but travels toward the cathode whether its reaction be acid, neutral, or alkaline.

4. The bacteria-agglutinin combination may be dissociated by means of the electric current.

j Quoted by Eisenberg in *Cent. f. Bakt,* 1906, xxxi, 540, are the following: Joos (if fresh bacilli are added to agglutinated bacilli, which had been previously washed free from serum, the former are agglutinated), Landsteiner and Jagic (dissociation at high temperatures) and Landsteiner and Reich.

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EXPERIMENTS ON THE PRODUCTION OF ANTIRABIC SERUM.

By DANIEL W. POOR, M. D.,
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Assisted by PHILIP J. FRIEDMAN, B. S.,
Laboratory Assistant.

The objects of this work were to determine, (1) if it was possible to produce a serum cytolytic or cytotoxic against the rabies organism, and (2) if such a serum could be combined with the Pasteur treatment to hasten the production of immunity in severe head bites, a class of cases in which the Pasteur treatment alone occasionally fails on account of the shortness of the incubation.

This combination of vaccine and serum has been used successfully in rinderpest and anthrax.

Most of the work on antirabic serum has been done by A. Marie of the Pasteur Institute in Paris. In 1902 he stated: "We know that the serum of mammals vaccinated against rabies possesses the power of neutralizing the rabic virus 'in vitro.'" Marie further states that for the production of such a serum the animal must be injected with strong virus during a long period of time.

In 1904 Victor Babes reported a series of patients severely bitten by rabid wolves in which he gave a combination of the Pasteur treatment and the serum of an immunized dog. The number of cases thus treated was not sufficiently large to judge of the advisability of adding the serum to the treatment.

Our work along this line may be tabulated as follows:

1. Animals used for the production of the serum. The dog, sheep, rabbit and horse, all of these have produced a strong immune serum; no others have been tried.

2. The treatment of the animal supplying the serum. The animals have been treated for variable lengths of time, uusually a number of months. The treatment of a horse which produced a strong serum in a short time is appended:



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Date.	Dose.	Virus.
September 19	40 c.c.	Filtered emulsion of brain of fixed virus rabbit heated to 65 degrees for 20 minutes.
September 20	40 c.c.	Filtered emulsion of brain of fixed virus rabbit heated to 65 degrees for 20 minutes.
September 24	60 c.c.	Filtered emulsion of brain of fixed virus rabbit heated to 65 degrees for 20 minutes.
September 25	60 c.c.	Filtered emulsion of brain of fixed virus rabbit heated to 65 degrees for 20 minutes.*
September 26	30 c.c.	6-day dried cord.
September 28	30 c.c.	4-day dried cord.
September 29	30 c.c.	3-day dried cord.
September 30	30 c.c.	2-day dried cord.
October 1	30 c.c.	4-day dried cord.
October 2	30 c.c.	3-day dried cord.
October 3	30 c.c,	2-day dried cord.
October 9	30 c.c.	3-day dried cord.
October 10	30 c.c.	1-day dried cord.
October 11	30 c.c.	2-day dried cord.
October 15	30 c.c.	2 and 3-day dried cord.
October 17	30 c.c.	Fresh cord.
October 18	30 c.c.	2-day dried cord.
October 22	10 c.c.	Fresh brain.
October 28	30 c.c.	Fresh brain.

*These emulsions were made in the proportion of 1/5 of an inch of cord to 3 c.c. of physiological salt solution.

It may be said that two sheep are at present under treatment which receive the relatively large doses of 20 c.c. of fresh brain emulsion without apparent detriment.

November 12, 2 litres of blood drawn from the jugular and tested November 13.

3. Technique of the treatment of the serum in vitro. Where it is desired to compare the strength of different animal sera or that of the same sera at different times, it is evident that a virus of uniform strength is desirable. This virus is prepared by us in the following way: A rabbit is autopsied on the eighth day after subdural inoculation with fixed virus. One gram of the right hemisphere (taken from before backward) is emulsified with 12 c.c. of normal salt solution. This emulsion is then centrifuged for three minutes under fixed conditions of rate of speed, tube, etc. A fixed amount of the top layer of the

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supernatant fluid is then drawn off and used as the test virus. This gives a virus sufficiently strong to kill a guinea pig in 5-6 days and sufficiently dilute to be free from particles of brain tissues of sufficient size to interfere with the action of the serum. It seems to me that such a virus would be of about as constant a strength as it is practicable to use.

This virus is mixed with the serum to be tested in various proportions and allowed to stand at room temperature 30 to 45 minutes. At the end of this time equal doses of these mixtures and of a control virus are inoculated into guinea pigs subdurally and at the end of a week the test is complete.

The following test which was made on the horse serum referred to above, serves as an example. On November 15 the following mixtures were inoculated, each guinea-pig receiving four drops subdurally from a fine needle.

1. Virus 1 c.c.+serum ¼ c.c.+salt sol. ¾ c.c.

Pig No. 1 well; November 30, discharged.

Pig No. 2, first symptoms of rabies November 22; dead November 23.

2. Virus 1 c.c.+serum ½ c.c.+salt sol. ½ c.c.

Pig No. 1 well; November 30, discharged.

Pig No. 2 well; November 30, discharged.

3. Virus 1 c.c.+serum 1 c.c.

Pig No. 1 well; November 30, discharged.

Pig No. 2 well; November 30, discharged.

4. Virus 1 c.c.+salt solution 1 c.c. (control).

Pig No. 1 died of rabies November 20.

Pig No. 2 died of rabies November 21.

From this test it is evident that this serum in the proportion of 1 to 4 of virus is hardly sufficient to kill all of the organisms, one of the pigs inoculated with this mixture dying of rabies with a prolonged incubation and the other escaping. That the killing effect in such a serum is due to specific properties in it, caused by the treatment, has been proved by numerous experiments with the sera of normal dogs, horses and rabbits, all of which sera are entirely without effect.

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It has been difficult to prove that this serum obeyed the same laws, in its action as bactericidal sera, owing to the fact that the living animal must be used for its test. The serum inactivated by heat may be reactivated by the blood of the animal used in the test. This question will be studied in the future by applying the method of Bordet-Gengou.

4. The question as to whether the increase in immune body caused by the Pasteur treatment was confined to the blood serum alone or whether the central nervous system was involved gave rise to the following experiment:

A rabbit was treated at intervals from January 2 to April 15; on April 24 it was bled to death. A thick emulsion of the brain and cord was made and after standing, the supernatant fluid was pipetted off to be tested. The same was done with the brain and cord of a normal rabbit. The virus used was a thin emulsion of fixed virus. The virus and brain emulsions of the normal and treated rabbits were then mixed and like proportions of the virus and serum of the treated rabbit were kept under the same conditions. Guinea pigs were then inoculated as follows:

1. Brain emulsion (normal rabbit) 1 c.c.+fresh rabbit serum 1 c.c. +virus 1 c.c.

Pig No. 1 died April 30.

Pig No. 2 died May 1.

2. Brain emulsion (immune rabbit) 1 c.c.+fresh rabbit serum 1 c.c. +virus 1 c.c.

Pig No. 1 died April 30.

Pig No. 2 died May 1.

3. Serum of immune rabbit 1 c.c.+fresh salt solution 1 c.c.+virus 1 c.c.

Pig No. 1 discharged, well, May 16.

Pig No. 2 discharged, well, May 16.

4. Salt solution 2 c.c.+virus 1 c.c.

Pig No. 1 died April 30.

This experiment appears to indicate that the effect of immunization is to increase the immune body in the blood to such an extent that de-

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velopment of the rabic organs in the nervous system does not occur, and not that the nervous system itself takes any active part. The above experiment is, of course, merely a rough indication, as the brain emulsions used may not have contained all the properties of the brain cells.

Concerning the loss of strength of the serum on standing, we have made the following observations:

Loss of strength of serum due to standing. The following observations have some bearing on these questions:

To test the loss of strength of sera kept in the ice box two samples of sheep serum were used, one which had been kept 1 month and the other 3½ months. Both samples had been strong shortly after being drawn, acting successfully in the living animal.

The first sample showed slight action in dose of one-half as much serum as virus and full killing power in equal amounts.

The second sample showed no killing effect in dose of ½ as much serum as virus and only feeble action when the two were used in equal amounts. The first sample was tested in animals and found to have little effect in prolonging incubation.

It would seem, then, that the serum should be freshly drawn, if possible, and probably not kept longer than two weeks. Further, that a number of animals should be constantly under treatment, so that while some are being inoculated others would be ready for bleeding. Further work must determine how a stronger serum is to be obtained from sheep or horses.

Action of the Serum in the Living Animal.

It was found that the injection of immune serum into rabbits gave disappointing results, the treated animals sometimes dying earlier than the controls. This was thought to be due to the fact that the serum was somewhat poisonous for the rabbits through a possible neurolytic action. The fact that rabbit's brain and cord tissue was injected into the animal furnishing the serum would account for this. Guinea pigs were therefore used. A further point noted with regard to guinea pigs was that they appeared to be poisoned by repeated doses of dog serum; the second injection frequently causing death, whereas the first was apparently without effect. This was thought to be due to a haemolytic

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action of the dog's serum on the guinea pig's red cells. An example of this is as follows:

Two large healthy guinea pigs were inoculated as follows:

Pig No. 1—May 5 received 1¾ c.c. of normal dog serum subcutaneously; May 8 received 2 c.c. of normal dog serum; May 11 pig is sick; May 15 pig died.

Pig No. 2—May 5 received 1¾ c.c. of normal rabbit serum.

May 8th received 2 c.c. of normal rabbit serum.

April 1st pig was alive and well and discharged.

Another test—May 19th, large, healthy pig received 1½ c.c. of normal dog serum.

May 21st, appeared normal and was given 1 c.c. of same serum.

May 23d, pig died.

The best combination was found to be guinea pigs inoculated with the serum of sheep or horses.

A further point to be noted is the necessity of employing a large number of animals in each experiment and the necessity of many experiments before any conclusion can be drawn. This follows from the well-known facts concerning the marked irregularity in incubation of rabies in guinea pigs when they are infected peripherally, as by inoculation into the leg. A number of animals inoculated in the same manner and with the same dose will come down with the disease at times varying a week or more and some may even fail to be infected at all. This is probably due to a variety of causes, e. g., the peculiar manner in which the infection travels, the probably protozoan nature of the organism, individual susceptibility of the animals, etc. It is, therefore, necessary in estimating the effect of an immune serum in lengthening the incubation in rabies, to employ several animals and take an average period of incubation in the treated animals and in the controls.

The following are some of the tests, made with immune serum in animals: March 30th, 15 pigs were inoculated in the region of the sciatic nerve with 1 c.c. of brain emulsion of street virus; 5 pigs were kept as controls, 5 were to be treated every day with 1 c.c. of a mixture of immune dog serum (1 month old) and fresh rabbit serum

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(complement); and in a third set of 5 pigs, each was to receive a single injection of 2 c.c. of a mixture of dog and rabbit serum one hour after infection by the virus.

The average duration of incubation in the controls was 17 2/5 days.

In the series receiving the repeated small doses of the serum, all became sick on April 4th after the second dose, and all but one died on that or the following day from the poisonous effects of the serum. This one survived and finally succumbed to rabies, May 7th, after an incubation of thirty-four days.

In the series receiving the single large dose of serum one was alive and well on May 19th and discharged on that date. One died accidentally, not of rabies. The other three died of rabies with an average incubation of 21 days.

Another test:

12 pigs were inoculated June 1st with 1 c.c. of street virus in the sciatic nerve.

6 pigs were kept as controls. These were given, two hours later, 2 c.c. of immune sheep serum. The remaining three were given on each of the three following days 1/2 c.c. of the serum and on the fourth day 1 c.c.

The average incubation of the controls was 17 3/5 days.

Of those receiving the single large dose of serum all contracted rabies with an average incubation of 29 days.

Of the three receiving repeated small doses, one died accidentally, not of rabies. One died of rabies with an incubation of 18 days and one was discharged alive and well six months later.

The attempt was next made to combine the immune serum with the Pasteur treatment to produce its full effect in immunization in man.

Thirty-six pigs were used, each inoculated in the leg with 1 c.c. of street rabies on August 4th. The animals were divided into six groups of six to a group.

In the first group a single large dose of serum (2 c.c.) was given 1½ hours after the virus.

In the second the same dose of serum at the same interval and in addition the pigs received a short course of Pasteur treatment (10 days).

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In the third group a smaller dose of serum (1 c.c.) was given late (24 hours after infection), and in addition the same Pasteur treatment.

In the fourth group a single dose of non-immune serum 1½ hours after infection.

In the fifth group, no treatment. Controls.

In the sixth group the Pasteur treatment alone.

On September 1st, 28 days later—

Of the 1st group 75% were alive.
Of the 2d group 66% were alive.
Of the 3d group 50% were alive.
Of the 4th group 50% were alive.
Of the 5th group 50% were alive.
Of the 6th group 25% were alive.

From this series it appeared (1) that the serum prolonged the incubation, (2) that the Pasteur treatment as given, acted as a poison and shortened the incubation, and that where the two were combined the good effect of the serum tended to counteract to some extent the bad effects of the Pasteur treatment.

It being evident that the Pasteur treatment could not be given in the ordinary way to guinea pigs, a mixture of the serum and fixed virus was used as suggested by A. Marie. Not being familiar at that time, with the details of the method, it was not given in strict accordance with Marie's directions.

It is evident that in the experiments above cited, the clinical conditions occurring in face bites in man are not correctly represented. In the latter case the short incubation is not necessarily due to a very large number of rabic organisms introduced into the body, but rather to the fact that they are introduced near the brain. In order to obtain a short incubation (15-20 days) in the guinea pig by inoculation into the leg with a brain emulsion virus, it is necessary as a rule to use a large amount of the virus representing an immense number of organisms. The great majority of these are soon taken up into the circulation and have little or no part in producing infection, those that remain behind and travel up the nerve track accomplishing this. The immune serum would nevertheless be partially used up in attacking these organisms in the circulation, and it would seem that it would be largely wasted in so

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doing. If it were possible to use a small number of organisms which would nevertheless produce an infection with a short incubation when inoculated peripherally, the conditions which we have to treat in man would be more nearly represented.

From work which we have done with the salivary glands of rabid dogs it has seemed to us that while the saliva varied considerably in virulence, yet when a virus which was strong was obtained from the glands, it was apt to infect animals more readily than the brain emulsion when given peripherally. At any rate it is very probable that it contains fewer organisms than the brain emulsion, as the latter is the medium in which the organism grows. It is a fact that we have often given as much as a c.c. of a thick brain emulsion in the leg of a guinea pig, and seen the disease produced very slowly or even not at all. On the other hand, we have produced the disease with a very short incubation with ½ c.c. (or even less) of either a salt solution extract or a glycerin extract of the salivary glands of the same dogs.

In the following experiment, carrying out the above ideas, we used as a virus ½ c.c. of a salt solution extract of the salivary glands of a dog with street rabies, and treated one-half the pigs with a mixture of immune serum and fixed virus vaccine as follows:

November 27th six pigs were inoculated in the region of the sciatic with ½ c.c. of gland virus. Three were kept as controls, and each of the other three were given subcutaneously half an hour after infection 2 c.c. of the following mixture:

Immune horse serum (heated to 60 deg. for ½ hr.), 8 c.c.

Fresh horse serum, 4 c.c.

Fixed virus brain emulsion, 4 c.c.

Again on December 4th each of these pigs received 4 c.c. of the following mixture:

Immune horse serum (heated to 60 deg.), 8 c.c.

Fresh horse serum, 4 c.c.

All the pigs died of rabies, the average incubation of the controls being 10 2/3 days, and of the treated pigs being 29 2/3 days.

By using sheep instead of guinea pigs and combining the serum and virus in a manner recommended by Marie, Remlinger has been

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able to protect his treated animals completely against an intravirulent infection of rabies when the latter was given 3 days before the injection of serum virus mixture.

Another experiment was undertaken to compare the amount of immune body in the blood of two sheep at the end of seventeen days after the beginning of treatment, the one sheep having been treated by the ordinary Pasteur method, the other by injections of mixtures of virus and serum. A preliminary test of the serum of the sheep made before the beginning of treatment showed both to be entirely inactive in the proportions used in the subsequent tests made at the end of treatment.

Treatment begun December 14th.

One sheep (No. 1) received the ordinary Pasteur treatment for 17 days.

The other (No. 2) received December 14—Immune horse serum, 8 c.c. (4½ weeks old); fresh horse serum, 4 c.c.; fixed virus brain emulsion, 4 c.c. N. B.—This mixture was neutral.

December 19—Immune horse serum, 12 c.c.; fresh horse serum, 5 c.c.; fixed virus brain emulsion, 9 c.c.;

December 26—Immune horse serum, 15 c.c.; fresh horse serum, 8 c.c.; fixed virus brain emulsion, 15 c.c.

On January 1st both sheep were bled and the serum tested as follows:

Sheep No. 1 (Pasteur treatment):

1. Virus, ½ c.c.+serum, 2 c.c.
 Pig No. 1 died 1/7 a. m.
 Pig No. 2 died 1/7 a. m.
2. Virus ½ c.c.+serum 1 c.c.+salt solution 1 c.c.
 Pig No. 1 died 1/6.
 Pig No. 2 died 1/6.
3. Virus ½ c.c.+serum ½ c.c.+salt solution 1½ c.c.
 Pig No. 1 died 1/7 a. m.
 Pig No. 2 died 1/6.

Sheep No. 2 (serum virus mixture):

1. Virus ½ c.c.+serum 2 c.c.
 Pig No. 1 died 1/8 a. m.
 Pig No. 2 died 1/7 a. m.

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2. Virus ½ c.c.+serum 1 c.c.+salt solution 1 c.c.
 Pig No. 1 died 1/7 p. m.
 Pig No. 2 died 1/8 a. m.
3. Virus ½ c.c.+serum ½ c.c.+salt solution 1½ c.c.
 Pig No. 1 died 1/7 a. m.
 Pig No. 2 died 1/7 a. m.

From this experiment, we see that by neither method of treatment is immune body produced to any extent in so short a time as 17 days, but that what slight difference there is, is in favor of the serum virus mixtures.

Conclusions.

From the above experiments one may conclude:

1. That it is possible to produce a strong immune serum against rabic virus, in rabbits, sheep, dogs and horses.

2. That for the production of such a serum a long course of treatment is necessary.

3. That this serum when fresh prolongs the incubation of rabies when injected into test animals a short time after infection.

Further work must be done to determine the method of combining the serum and virus to produce the best results. It is expected that in the near future we shall fully test Marie's method of preventive inoculation in dogs. We have at present three sheep under treatment for the production of serum and are prepared to employ this in combination with the Pasteur treatment in such cases as warrant its use.

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THE AGGLUTINATION TEST AS APPLIED TO THE DIAGNOSIS OF GLANDERS.

(Preliminary Summary.)

By K. R. Collins, M. D., Bacteriologist.

The readiness with which the agglutination test can be carried out when compared to the mallein test for glanders in horses has made it the subject of much investigation by those interested in comparative medicine.

Pokchichevski, in 1902, states that normal horse blood will agglutinate the B. mallei in dilutions of 1:300, while the sera of horses infected with glanders will agglutinate it in dilutions of 1:500 and above.

Afanassjeff shows practically the same results. Schütz and Meissner from the Pathological Institute, Berlin, 1905, undertook an extensive series of observations upon the subject.

A number of normal horses were given experimental glanders and in from six to twelve days the agglutinating index of the blood serum of these horses had increased from 1:300 to 1:2000 and 8000. Subsequent autopsy of these horses showed the typical lesions of glanders in the lungs and other organs.

In the course of their work 2,209 horses were tested. These consisted of horses that were normal, those ill of other diseases than glanders, and those having glanders. The three accompanying tables give the average results of their findings:

TABLE I.

Free from Glanders.						Glanders.					
1-300	400	500	600	800	1000	500	600	800	1,000	1,500	2.000
145	36	17	15	6	2	2	4	6	11	6	5
221 (25 killed).						34					

255 horses.

TABLE II.

Free from Glanders.						Glanders.					
1-300	400	500	600	800	1,000	500	600	800	1,000	1,500	2,000
5	4	2	1	4	1	..	2	2	4	9	2
17						19					

36 horses.

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TABLE III.

Disease.	100	200	300	400	500	600	800	1,000
Drüse (glands or strangles)	1	3	1	..	..	..	..	..
Catarrh of superior maxillary sinuses	..	1	1	1	1	2	..	..
Lymphangitis	..	1	2	1	1	..	..	..
Various skin diseases	..	1	..	1	..	..	1	..
Lymphosarcom	..	1	1	1	..	..	1	..
Pleurisy	..	..	..	..	..	1	2	1
Foci in the lungs	2	4	4	..	..	..	..	..

Schnürer and Bonome verified these results. Hutyra, of Budapest, in experimental glanders in horses found that the agglutination index raised from 1:100 to 300 before injection to 1:1000 to 1:2000 several days after inoculation.

Moore, Taylor and Giltner found the index of normal horses tested to range from 1:100 to 1:500; while in twelve horses with diseases other than glanders, the index did not exceed 1:500, and in thirty-seven horses suspected of having glanders, all cases reported as positive by the veterinarians in charge, agglutinated in dilutions of 1:600 and above.

For the past several months the work carried on in this laboratory has been for the purpose of ascertaining to what extent this test can be relied upon in the diagnosis of glanders.

Since August 14, 1905, the sera from four hundred and fifty-seven horses have been tested. In many instances a series of observations have been made from time to time upon the same horse. We are indebted to Dr. H. D. Gill, Veterinarian for the State Department of Health, and to Dr. A. D. Silkman, Veterinarian for the Health Department of New York City, for the collection of sera, clinical observations and autopsies. Dr. R. H. Kingston, Veterinarian of New York City, has also aided us in supplying cases other than glanders that have been of interest and value in the work.

In making the test for agglutination a culture of B. mallei has been used which was obtained from Dr. Moore, of Cornell University. Other cultures obtained from different sources (two from human cases) have been tested from time to time, but the one culture, as stated, has been relied upon throughout as a standard culture.

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Schütz and Meissner state that in order to obtain a culture whose agglutinability does not vary the organism must be passed through an animal every two weeks. This assertion is in direct contradiction to our experience with other organisms, it being a well-known fact that recently isolated dysentery and typhoid bacilli are poor agglutinators, but after long growth upon artificial media may have their agglutinability increased. The possibility of this being due to the contact of the organisms with the serum elements of the body (which, as has been shown, may contain some normal agglutinins) is indicated by the experience of Marshall and Knox and Park and Collins. These authors demonstrate that dysentery bacilli and typhoid bacilli grown for some time in the presence of a specific serum, may lose their agglutinability, and that this loss can be recovered after a long period by the withdrawal of the serum from the media. Bearing in mind, however, that this might not be true for the B. mallei, the original culture has been controlled from time to time by one recently passed through the guinea pig; thus far no difference has been noticeable excepting that which may be attributable to other conditions.

Hanging drops have been chiefly relied upon, these being frequently controlled by the tube method. The B. mallei forms in 24 hours a light growth which gives about the right number of bacilli for testing with the hanging drop, but not sufficient to be recognized macroscopically; hence a much heavier growth (about 3 days) is requisite for the latter method. As old cultures are liable to lose their agglutinability to some extent, the younger cultures are preferable and more reliable, therefore if the tube method is used, an emulsion of the bacilli grown on agar is best. One advantage of the hanging drop over the tube method is that contaminations and anomalous conditions that have sometimes been met with are quickly detected. Federowsky has also found the microscopical method to be the more delicate and reliable.

The hanging drop controlled by the tube with a young culture shows no practical difference examined microscopically. The hanging drop where the young culture is used and the tube where the older culture is used will show a difference due both to the diminished agglutinability of the old culture, and to the greater number of organisms in

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the latter. Where the old culture is used the index will therefore be lowered.

The twenty-four hours' broth culture is heated to 60° C. for one minute, this proving sufficient to check the growth of the bacteria and yet not affecting their agglutinability.

Clumping does not occur as quickly as with some other organisms such as the typhoid and dysentery bacilli, but, like the pneumococcus, requires from twelve to eighteen hours for completion.

In October we tested the blood of thirteen horses from a stable where a case of glanders had developed a few weeks previously. Mallein was then given to eight of them. Nine days later two of the number were tested again for the agglutination reaction and with mallein. Four days later blood tests were again made for the three.

The following table gives the result of these tests:

TABLE IV.

	October 30.		November 8.		November 12.	
	Agglutination.	Mallein Reaction.	Agglutination.	Mallein Reaction.	Agglutination.	Mallein Reaction.
1	5,000	Neg.				
2	2,000	Neg.				
3	200					
4	2,000	Neg.				
5	1,000	Good.	10,000	Positive.	20,000	*
6	5,000					
†7	200					
8	2,000	Partial.				
9	3,000	Partial.				
10	5,000	Partial.				
11	1,000					
12	2,000	Good.	10,000	Good.	10,000	*
13	2,000					

* These were destroyed because of the glanders infection.
† Died of pneumonia.

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Unfortunately autopsies could not be obtained in these cases on account of lack of facilities, and we have not been able to make further observations upon this stable.

Bonome and others claim that the agglutination reaction increases after the administration of mallein. This, however, has not been my experience, and the above table shows in two horses a decrease after mallein, while in the two horses that died the increase in index may well be attributed to the progress of the disease, as the repeated mallein reaction follow the same curve.

The blood of thirty horses from a stable where glanders had existed was tested and mallein was given in six cases one month later. The results were as follows:

Three horses agglutinated at 1 : 5000, one of the three tested a month later with mallein gave no reaction, one died of glanders. Two agglutinated at 1 : 2000 and were negative to mallein. Two agglutinated at 1 : 1000 and one tested with mallein gave a negative reaction. Four agglutinated at 1 : 500. One that agglutinated at 1 : 200 gave a slight reaction to mallein a month later. One agglutinating at 1 : 200 was negative to mallein, the remainder agglutinated at 1 : 200 and below and were not tested with mallein.

TABLE V.

The sera from fifty horses taken from a stable where glanders had occurred, agglutinated as follows:

9	agglutinated at	1 : 500	3	tested with	mallein,	2	reacted.	
9	"	" 1 : 1000	6	"	"	"	3	"
7	"	" 1 : 2000	4	"	"	"	4	"
25	"	below 1 : 500	2	"	"	"	2	negative.

In sera from thirty-two horses from another stable where glanders had occurred were tested the same as above.

4	agglutinated at	1 : 500	2	reacted	to	mallein.
12	"	between 1 : 1000 and 1 : 2000	6	"	"	"
7	"	" 1 : 5000 and 1 : 10000	3	"	"	"
9	"	below 1 : 500	0	"	"	"

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Three normal mules tested gave the following reactions:

1. Reacted at 1:1000.

2. Reacted at 1:1000.

3. Reacted at 1:1000.

One mule condemned for glanders on physical signs gave a reaction in 1:20000. The normal agglutinins present in the blood of the mule may perhaps show a higher average than in horses.

A series of tests made upon four horses show the variation in the agglutination reaction that may sometimes occur. A regular increase is observed in three while the third shows an irregular rise and fall. This condition occurs constantly in experimental animals immunized with various organisms.

No. 1. *Glanders*—Agglutinated at 1:500, mallein positive; later agglutinated at 1:2000, mallein positive; later agglutinated at 1:10000, mallein positive.

No. 2. *Glanders*—Agglutinated at 1:5000, mallein positive; later agglutinated at 1:10000, mallein positive.

No. 3. *Suspicious*—Agglutinated at 1:2000, mallein good; five weeks later agglutinated at 1:5000, mallein good; ten days later agglutinated at 1:2000, mallein good; two days later agglutinated at 1:5000, mallein good.

No. 4. *Suspicious*—Agglutinated at 1:20000, mallein good; five weeks later agglutinated at 1:5000, mallein good; five weeks later agglutinated at 1:5000, mallein good.

From a stable of horses that were supposed to be normal the sera from seven agglutinated below 1:500; three agglutinated at 1:500; four agglutinated at 1:1000 and above.

One horse with an index below 1:500 and one with an index above 1:500 were tested with mallein and both gave a negative reaction. This stable continues under observation.

One horse from this stable reacted at 1:200; four months later a test was made and the index was 1:5000. The horse at this time had two ulcers on the legs. An organism recovered from the pus morphologically resembled glanders and was quite virulent for guinea pigs

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but failed to develop agglutinins for glanders in the animal or to give any of the other reactions peculiar to the B. mallei.

Schütz and Meissner found that the blood of one horse with lymphangitis out of four such horses tested, agglutinated at 1:1000, and two at 18:00; they state that this is the only condition not glanders that will give such a high reaction.

Nine horses with lymphangitis were tested by us and mallein given to four.

Two agglutinated at 1:2000; mallein not given.
One agglutinated at 1:1000; mallein not given.
One agglutinated at 1:500; mallein not given.
One agglutinated at 1:100; mallein not given.
One agglutinated at 1:5000; mallein negative.
One agglutinated at 1:1000; mallein negative.
Two agglutinated at 1:2000; mallein positive.

The question that might arise here is whether or not there was a latent glanders in those cases where the reaction is high. More extensive research is necessary before any conclusion can be reached, but the fact that two horses, apparently healthy, reacted to mallein is suggestive. The mallein was not given until the horses had fully recovered from the attack of lymphangitis.

In one stable of thirteen horses the sera were tested for the agglutination reaction; mallein was given and then the horses were killed and autopsied. In all but one instance the results of the agglutination reactions were confirmed by the mallein test and autopsy.

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TABLE VII.

The following list of horses was tested for the agglutination and finally killed because of glanders:

	Condition Reported.	Agglutination.	Mallein.	Disposition.
1.	Enlarged submaxillary	5,000		Destroyed.
2.	Eruption	500		"
3.	Septic condition	1,000		"
	Sixteen days later.....	5,000	Positive	"
4.	Farey	2,000	Positive	"
5.	Suspicious	1,000		"
6.	Continued high temperature.....	1,000		"
7.	Enlarged submaxillary.....	5,000		"
8.	Suspicious	2,000		"
9.	"	10,000	Positive	"
10.	Glanders	20,000	Positive	"
11.	Ulcer of septum.....	5.000	Negative	"
12.	Mule glanders.....	20,000		"
13.	Nasal discharge.....	1,000		"
14.	Glanders	2,000		"
15.	Suspicious	2,000	Good	"
16.	"	2,000	Positive	"
17.	"	2,000	Good	"
18.	"	500		"
19.	"	2,000		"
20.	Continued high temperature for weeks	20,000		but no report made.
21.	Suspicious	500	Good	Destroyed.
22.	Enlarged submaxillary.....	1,000		"
23.	Suspicious	5,000		"
24.	Glanders	2,000		"

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The following list is comprised of horses that were tested with mallein and for the agglutination reaction. The horses are still working:

TABLE VIII.

	Condition.	Agglutination.	Mallein.
1.	Glanders	5,000	Positive
2.	Enlarged submaxillary	5,000	Good
3.	Suspicious	2,000	Good
4.	Enlarged submaxillary	10,000	Good
5.	Eruption	2,000	Negative
6.	Suspicious	5,000	Negative
7.	Exposed to glanders	500	Negative
8.	Suspicious	10,000	Good
9.	"	2,000	Good
10.	"	5,000	Positive
11.	"	5,000	Good
12.	"	5,000	Positive
13.	"	5,000	Positive
14.	"	2,000	Good
15.	"	2,000	Good
16.	"	500	Negative
17.	"	1,000	Positive
18.	"	2,000	Positive
19.	"	2,000	Negative
20.	"	2,000	Questionable
21.	"	2.000	Good
22.	"	10,000	Good
23.	"	1,000	Good
24.	"	200	Negative
25.	"	Negative	Negative

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The following list consists of horses tested for the agglutination reaction only:

TABLE IX.

	Condition.	Agglutination.
1.	Swollen leg	1,000
2.	Suspicious	500
3.	Absces on hip	1,000
4.	Suspicious	10,000
5.	"	2,000
6.	"	500
7.	"	1,000
8.	Abscess over eye	5,000
9.	Suspicious	500
10.	"	1,000
11.	"	500
12.	"	2,000
13.	"	5,000
14.	"	10,000
15.	"	500
16.	"	1,000
17.	"	2,000
18.	"	200
19.	"	negative
20.	"	5,000
21.	"	2,000
22.	"	5,000
23.	Enlarged submaxillary	5,000
24.	Suspicious	5.000
25.	"	1,000
28.	"	2,000
29.	"	5,000
30.	"	10,000
31.	"	1,000
32.	"	negative
33.	"	1,000
34.	"	2,000
35.	Pyaemia	200(died)
36.	Chronic catarrh	200
37.	Blood disorder	100



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TABLE IX (Concluded)

	Condition.	Agglutination.
38.	Enlarged submaxillary	100
39.	Azoturia	2,000
40.	Infected muscle	negative
41.	Maxillary abscess	negative
42.	Nasal discharge	500
43.	Normal	100
44.	"	100
45.	"	200
46.	"	200
47.	"	negative
48.	"	200

Summary.

It is not possible to draw definite conclusions as to the specificity of the agglutination reaction in glanders until the findings in questionable cases have been confirmed by careful autopsies.

The facts are suggestive, however, and tend to substantiate the views of all who have investigated the subject that high reactions indicate the presence of glanders, and reactions even as low as 1:500 must be looked upon with suspicion. Further research will help to establish the reliability of the reaction, careful autopsies and systematic observation of the same horses over an extended period of time being the requirements best calculated to furnish definite and satisfactory provings.

At present the value of the test lies in its use as an indicator for the mallein test. In our hands, since the technique has become uniform, only one horse, as far as tested, has failed to give an agglutination reaction where it has responded to the mallein test; as a second testing was not practical at the time, this one negative case with so many positive cases becomes a negligible quantity.

The presence of the agglutination reaction before the mallein reaction is accounted for by the fact that agglutinins are, as a rule, very quickly raised in the animal body, other antibodies oftentimes not appearing until late. A slight infection would then be sufficient to in-

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duce this reaction. This has been shown with some horses, which gave only an agglutination reaction at first. Several weeks later they showed an increase in the agglutinating index and reacted to mallein and then either exhibited the physical signs of glanders before death or the characteristic lesions on autopsy.

A few human cases of glanders have been studied. The bloods of these patients have agglutinated in dilutions of 1:1000 and 1:2000. In two cases the B. mallei has been recovered, from the pus of an abscess in one case, and from the blood in a second case.

The sera from patients having diphtheria, scarlet fever and tuberculosis have been tested with the B. mallei. In some instances they have agglutinated the bacillus in dilutions of 1:50, and once as high as 1:100. In cases of glanders, as far as tested, the reactions occur in much higher dilutions so that the chances for confusion of any of these conditions with glanders, at least as far as the agglutination reaction is concerned, is very slight. In all cases of apparently irregular typhoid the blood should be tested with the B. mallei.

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[The completed study will appear in the 1907 volume of the Studies from the Research Laboratory.—Editor.]



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AGGLUTININS AS RECEPTORS OF THE THIRD ORDER.

KATHERINE R. COLLINS, M. D., Bacteriologist.

The following limited number of experiments were undertaken for the purpose of determining to what extent the results of the work on agglutinins being carried out at the time, might be affected by the more recent views, advanced by some observers, that agglutinins may sometimes be receptors of the third order and require the addition of complement or a corresponding substance to bring about a reaction.

Joos believes that the agglutination reaction resembles the formation of a double salt, thus requiring the presence of a third substance. Bail places the agglutinins in the third order, while Eisenberg and Volk are uncertain whether they are in the second or third. Formerly Ehrlich believed agglutinins to be of the second order but has in a recent general review on the work on immunity suggested the possibility of the precipitins and agglutinins behaving at times in a similar manner to the immune bodies.

Muir and Browning in the course of some haemolytic experiments found that agglutination of the stromata occurred upon the addition of a complemental serum. This agglutination passed off after several hours, but partially returned upon further addition to the fresh serum. This led the authors to the view that agglutinins might sometimes be receptors of the third order; they state, however, that they made only one observation.

The foregoing opinions have been based chiefly upon results obtained from red blood cells. Ohwada, however, found that an old typhoid serum which had lost its agglutinating power was reactivated by the addition of fresh normal rabbit serum, but not by fresh horse, dog, guinea pig, cat, or chicken serum. He names the substance in the fresh serum "add-agglutinins."

The following experiments have given negative results in every combination except where the amount of complemental serum added would alone agglutinate the organism used:

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Serum of a Horse Immune to B. Typhi to which Fresh Normal Horse Serum Has Been Added and Tested with B. Typhi.

Index of Immune Serum before Treatment.	Index of Fresh Normal Horse Serum.			Index of Immune Serum + B. typhi; After ½ hour Fresh Normal Horse Serum Added in Dilution 1:25.	Index of Immune Serum + Fresh Normal Horse Serum 1:25; After ½ hour B. typhi Added.	Index of Immune Serum + Fresh Normal Horse + B. typhi Added at Once.
1:1000	1:10	1:20	1:50	1:1000	1:1000	1:1000
++	—	—	—	++	++	++

Same Index as Above.	Index of Fresh Normal Horse Serum.	Index of Immune Serum + B. typhi; After ½ hour Fresh Normal Horse Serum Added 1:50.			Index of Immune Serum + Fresh Normal Horse Serum 1:50; After ½ hour B. typhi Added.			Immune Serum + Fresh Normal Horse Serum + B. typhi Added at Once.		
1:1000	1:50	1:1000	1:2000	1:5000	1:1000	1:2000	1:5000	1:1000	1:2000	1:5000
++	+1	++	+1	+1	++	+1	+1	++	+1	+1

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The same immune serum as above, heated to 56 degrees for 30 minutes, shows a diminution in the amount of agglutinins which the addition of fresh normal horse serum does not restore.

The serum of a second horse immune to B. Typhi was tested in the same manner with fresh normal rabbit serum added as complement; the results were the same as above.

A rabbit serum immune to the B. Dysentery (Shiga Type), heated to 56 degrees for 30 minutes, and fresh normal rabbit serum used as complement, also failed to show increase or restoration of agglutinins.

Finally a rabbit serum immune to B. Dysentery, two years old and showing partial loss of agglutinins, was tested, fresh normal rabbit serum being used as a complement. Here again the results were negative.

Since this paper was written Shibayama has made a series of tests with immune horse serum heated to varying degrees for different periods of time and to which he added fresh normal rabbit serum in amounts above the normal index of the serum. In this way he restored to the immune serum the agglutinins that had been destroyed by heat. These results I have failed in repeated instances to bring about, and where changes do occur they would seem to me to be purely of a physical nature. I cannot share the rather more prevalent view, that the agglutinin in such instances acts as a receptor of the third order, according to Ehrich.

Conclusions.

The above experiments are not sufficient in number or latitude to refute, in the case of bacterial agglutinins, the findings of the several observers, that agglutinins may act like receptors of the third order. They demonstrate, however, that the phenomenon is not frequent and they suggest several possible sources of error that might readily lead to erroneous conclusions.

1. The technique of the agglutination reaction, as it stands at present, is of necessity variable within narrow limits, but uniform in the wider readings; hence, if the yearlings are taken within too narrow limits the results may be misleading.

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2. The possibility of the normal serum containing agglutinins for the organism tested must be kept very definitely in view.

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SOME STATISTICS ON PNEUMONIA.

By Dr. CHARLES BOLDUAN, Bacteriologist.

The following data are compiled from the history cards filled out by the medical inspectors, for cases of pneumonia reported from the hospitals in New York City (Boroughs of Manhattan and Bronx) during the winter of 1904-5. There were 1,384 such cases, but on about 500 cards there were practically no data whatever, leaving about 900 cards as a basis of these observations.

Type of Pneumonia.

There were 776 cases of frank lobar pneumonia, with 206 deaths—26½ per cent. mortality. There were 119 cases of broncho-pneumonia, with 41 deaths—34 4/10 per cent. mortality.

Age Incidence.

In 876 cases of pneumonia there were sufficient data to learn something of the age incidence of the disease, especially in a comparison of the lobar type with the broncho type. Of these 876 cases, 760 were lobar pneumonia, and 116 were broncho pneumonia, a proportion of about 6½ to 1.

The type of the disease at different ages is well shown by the following tables:

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TABLE 1.

This gives the actual number of cases reported for the age period stated.

Lobar Pneumonia.

Under 1 Year.	1 Year and Over, but Under 5.	5 and Under 10.	Total Under 10.	10 and Under 15.	15 and Under 20.	Total 10-20.	20-30.	30-40.	40-50.	50-60.	60-70.	70-80.	Over 80.	Totals.	Proportion.
13	43	28	84	20	52	72	178	177	131	75	32	9	2	760	84.5%

Broncho Pneumonia.

23	47	14	84	2	3	5	7	5	5	1	3	5	1	116	15.5%

TABLE 2.

This shows the percentage, of the cases at the age group, on the total number of cases of that type.

	Under 1 Year.	1 Year and Over, but Under 5.	5 and Under 10.	Total Under 10.	10 and Under 15.	15 and Under 20.	Total 10-20	20-30.	30-40.	40-50.	50-60.	60-70.	70-80.	Over 80.	Totals.
Lobar ...	1.7	5.6	3.7	11.0	2.6	6.8	9.4	23.4	23.2	17.2	9.8	4.2	1.2	0.3	100%
Broncho .	20.0	40.0	12.0	72.0	2.0	2.5	4.5	6.0	4.3	4.3	0.9	2.5	4.3	0.9	100%

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An examination of these tables brings out a number of interesting points. Thus, while the ratio of lobar pneumonia to broncho pneumonia generally, is about 6½ to 1, the proportion at the different age groups presents certain marked variations. Thus under one year, there are almost twice as many broncho pneumonias as lobar. Between one and five years, the figures are about equal, and commencing with five years, the lobar pneumonias begin to outnumber the bronch pneumonias. In the decennial periods 20/30, 30/40 and 40/50, there are more than twenty times as many lobar pneumonias as broncho pneumonias. Finally, in the very old people, we see the relative proportion between the two types approach that of the early periods of life.

If we regard each form of pneumonia separately, as is done in Table 2, we see that lobar pneumonia, when it occurs, is most apt to attack individuals between 15 and 60, preferably between 20 and 40. Almost 50 per cent. of the cases of lobar pneumonia fell in the latter age group.

When broncho pneumonia, on the other hand, occurs, our table shows that over 70 per cent. of the cases are in children under ten years old.

Mortality.

The termination of the two varieties of pneumonia at the various age groups is well shown in the following table:

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TABLE 3.

	Under 1 Year.	1 Year and Over, but Under 5.	5 and Under 10.	Total Under 10.	10 and Under 15.	15 and Under 20.	Total 10–20.	20–30.	30–40.	40–50.	50–60.	60–70.	70–80.	Over 80.
Lobar.														
Recovered.....	9	35	28	72	17	44	61	136	137	79	36	13	3	1
Died.....	4	8	..	12	3	8	11	42	40	52	39	19	6	1
Per cent. mortality in each age group....	31%	18%	..	17%	15%	15%	15%	24%	23%	40%	52%	60%	66%	50%
Broncho.														
Recovered.....	11	29	13	53	2	3	5	7	5	3	1	..	1	..
Died.....	12	18	1	21	..	..	..	..	..	2	..	3	4	1
Per cent. mortality in each age group....	53%	38%	7%	28%	..	..	..	..	..	40%	..	100%	80%	100%

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As was stated above, the general mortality was 26½ per cent. in the lobar pneumonia, and 34 4/10 per cent. in the broncho pneumonia. The table just given, shows that in lobar pneumonia the mortality is lowest in the five to ten-year period, and that from that time on, it gradually rises with the age of the patient. The same increase is noted as the age of the patient *decreases* from this five-year period, so that in the first year of life the mortality is over 30 per cent. In broncho pneumonia conditions are similar, though the mortality in the young is almost double that of the lobar type of the disease.

Site of Infection.

The site of infection is shown on 895 cards, and was as follows:

Lobe Involved.	Per Cent. of Whole Number.	Total Number.	Died.	Recovered.	Mortality in Per Cent. for That Lobe.
Upper right.....	12.8	99	16	83	16.2
Upper left.....	6.4	49	12	37	24.5
Lower right.....	18.3	142	36	106	25.3
Lower left..... ..	23.3	181	42	139	23.2
Other sites (usually several lobes affected).....	39.2	305	100	205	33.
	100.	776	206	570	26.5
Broncho pneunomia.....		119	41	78	34.4
		895	247	648	

Of the total number of cards returned, 489 do not show the site of infection. About 13 per cent. of the cases reported were broncho pneumonia. Whether this really represents the true proportion in which the disease prevailed during the season 1904-5, is impossible at this time to say, as we do not know whether the hospital authorities understood that *all* cases of pneumonia were to be reported to the Health Department, and not merely cases of lobar pneumonia.

It will be noticed in the above table that infection of the right lobe is associated with a low mortality. This is probably due largely to the small size of this lobe, and the consequent smaller extent of the infection.

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So far as the site of the infection is concerned, it may be of interest to compare the findings with those of other authors. The following figures were obtained by Juergensen in a study of over 6,000 cases of pneumonia.

Upper right	15.15%
Upper left	6.96%
Lower right	22.14%
Lower left	22.73%
Other sites	33.02%

It will be seen that the New York cases (1904-5) show slightly smaller frequency of the upper and lower right lobes, but on the whole the correspondence is rather striking.

Nativity.

The nativity of the Manhattan and Bronx cases is as follows:

United States, white	465 cases, or	53%
United States, colored	58 " "	6½%
Irish	136 " "	14%
German	64 " "	7%
Italian	52 " "	6%
Russian	32 " "	3½%
English	19 " "	2%
All others	72 " "	8%
	898	100%

In order to compare these cases with each other, we must know the nativity distribution of the population of Manhattan and Bronx. According to the United States Census of 1900, this was then as follows:

Total population Manhattan and Bronx, 2,050,600, of which 850,000 were foreign born.

This leaves born in the United States		1,199,716, or	58.5%
The foreigners were:	Germans	189,720 "	9.0%
	Irish	178,886 "	8.5%
	Italians	103,795 "	5.0%
	Russian	129,700 "	6.0%
	All others	248,783 "	13.5%



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In the population, the Germans slightly outnumber the Irish, yet the incidence of the pneumonia cases shows twice as many Irish as Germans. What are we to conclude from these figures? Are the Irish more than twice as susceptible to pneumonia as the Germans? Or are the occupations such, that the Irish, as a rule, are more exposed to the weather than are the Germans? Or, since these are all hospital cases, do the Irish seek hospital treatment more readily than the Germans? Some light is shed on this problem by a study of the nativity incidence of all deaths in Manhattan and Bronx. This is shown in the following table for 1902:

United States	25,876, or	62.0%
German	3,838 "	9.2%
Irish	5,286 "	12.7%
Italian	1,507 "	3.6%
Russian	1,212 "	2.9%

The distribution of the population as given above was: United States, 58 per cent.; German, 9 per cent.; Irish, 8½ per cent.; Italian, 5 per cent.; Russian, 6 per cent.

From this it would appear that the Irish do not seek hospital treatment any oftener than the Germans, for we see that the percentage of deaths among the Irish is here also greater than their relative strength in the population. Another fact emerges from this table when taken in conjunction with that showing the nativity incidence of the pneumonia deaths. In the latter the deaths among the Italians is greater than their share in the population; in the table of the total deaths, however, the Italians have less than their quota as indicated by the population. In other words, these people have also suffered more from pneumonia than have the native-born Americans or the Germans. This strongly supports the view that the greater prevalence of this disease among the Irish and the Italians is due to the more usual occupation of these people. In New York, at the present time, the Irish are largely employed as truck, cab, or car drivers, motormen, bricklayers, etc., while the Italians are very largely laborers. All these occupations are attended with considerable exposure to inclement weather.

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Complications.

The most frequent complications in this series of cases were pleurisy with effusion, and empyema. Of the former, the cards record twenty-four cases; of the latter twenty-three cases. It is impossible, however, from these figures to calculate even approximately, the frequency of these complications, as a large number of cards have the heading "complications" not filled out. Whether this means that there were none, or that they were merely not noted, cannot be determined.

The twenty-four cases of pleurisy with effusion were made up of fifteen males, and nine females. Their age distribution is shown in the following table:

Years: 16†-18-18†-20-20-22-23-26-28-29-30-32-34-35-36-38-38-40†-40-42-44-47-54.

Of these, the cases marked with a dagger, were fatal; that is, three out of twenty-four died.

The cases complicated by empyema were twenty-three, of which twenty were males and three females.

Their age distribution was as follows:

Years: ½-2†-4-5-8†-12-18-19-21-22-23-27-28-30†-34†-34-38-38-47-48†-48-52-59.

Of these the cases marked with a dagger, were fatal. That is, five out of twenty-three died.

So far as the sex incidence of these cases is concerned, it does not differ materially from that of the pneumonia cases in general, which was, out of 974 cases, males 675, and females 299.

Attention may perhaps be called to one point of interest in connection with these complications, and that is the frequency with which empyema occurs in children, while pleurisy with effusion seems to occur only rarely at that time. However, the figures are really too small to draw any general conclusions.

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THE FRACTIONAL PRECIPITATION OF ANTITOXIC SERUM.

Drs. E. J. BANZHAF and R. B. GIBSON.

Comparatively little attention has been paid to the fractional precipitation of antitoxin. Brodie[1] in 1897 separated antitoxic horse serum into four fractions by the progressive addition of ammonium sulphate to half saturation; all four contained, however, relatively equal amounts of antitoxin. Atkinson,[2] in the Research Laboratory of the Department, saturated with sodium chloride a solution of the moist serum globulin precipitate obtained with magnesium sulphate, and by the employing heat, differentiated the globulin into several fractions containing antitoxin. The protective properties corresponded roughly to the quantities of serum globulin in the precipitates. In some unpublished experiments he found that alterations of the amounts of coagulated proteid in the several fractions resulted if more magnesium sulphate was added before heating; there were proportionate changes in the distribution of the antitoxin. Owing to the destruction of a portion of the antitoxin at the higher temperature and possible injury by exposing it to heat of less degree, this fractionation must be considered as incomplete and does not exclude a purification of the antitoxin by salt fractionation. The work of E. P. Pick on the ammonium sulphate fractioning of the antibodies has been referred to in a preceding communication. Our own experiments have resulted somewhat differently from either those reported by Atkinson or by Pick, and have developed some important new and suggestive facts.*

On the basis of the solubility of the antitoxin proteids in saturated NaCl solution, one of us (Gibson) recently devised a method for the partial purification and concentration of antitoxin. This consisted in

[1]Brodie: *Journ. of Path. and Bact.*, iv, p. 460, 1897.

[2]Atkinson: *Journ. of Exper. Med.*, v, p. 67, 1901.

* The literature on the purification and chemical characters of antibodies has been briefly reviewed in a paper on the "Practical Concentration of Diphtheria Antitoxin for Therapeutic Use," in the Report of the Department for 1905.

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precipitating the diluted plasma with an equal volume of saturated ammonium sulphate and separating the antitoxin proteids by extracting the precipitate with saturated sodium chloride solution. We now have employed the method of salt fractionation to study further the concentration of antitoxin.

Twenty liters of plasma (475 units per c.c.) were diluted with 20 liters of water; by fractioning with ammonium sulphate the three proteid precipitates were obtained which separated at concentrations corresponding to 3.3 c.c., 3.3-3.8 c.c. and 38-50 c.c. of the saturated salt solution in 10 c.c. The NaCl soluble (antitoxic) globulins of these fractions and of the 5.0 saturation precipitate of a second 20 liters of the plasma were prepared as usual.

Prep. 77.

Fractions.	A. 0.0-5.0	B. 0.0-3.3	C. 3.3-3.8	D. 3.8-5.0
Volume, c.c.	5,200	1,440	1,400	2,050
Units per c.c.	1,450	1,150	1,350	1,750
Times concentrated	3.05	2.42	2.84	3.68
Per cent. recovered	79.3	17.4	19.9	37.8
Proteid, gms. per 100 c.c.	11.66	11.51	9.87	9.70
Units, per gm. proteid	12,436	10,000	13,666	18,000

A second experiment with a 450 unit plasma gave the following results:

Prep. 82.

Fractions.	A. 0.0-5.0	B. 0.0-3.3	C. 3.3-3.8	D. 3.8-5.0
Volume, c.c.	6,240	1,350	1,640	2,550
Units per c.c.	1,050	900	1,300	1,600
Times concentrated	2.34	2.00	2.89	3.56
Per cent. recovered	72.8	13.9	22.6	45.3
Proteid, gms. per 100 c.c.	10.59	12.06	13.46	13.41
Units, per gm. proteid	9,914	7,464	9,655	11,930



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These observations show that the antitoxic globulins of the higher fractions are much more potent than those of the less soluble proteids.

Both the preparations, by the original method and by fractioning when precipitated from the NaCl solution and dialyzed, contained a probably partially denaturalized antitoxic globulin; this has a diminished solubility and antitoxic potency (per gm.) and is precipitated on slight acidification by diluting at least twenty times. The filtrates from the acid water precipitable globulin coagulated at 73 degrees while saline solutions of these precipitates showed varying and much lower coagulating temperatures. The following results were obtained on progressively fractioning (in two experiments) by the addition of the dry salt, to a liter of about 400 units antitoxic plasma. The initial dilution was 1.5. The precipitates were pressed between filters and extracted with saturated NaCl solution. The determinations on the filtered extracts are given per c.c. of the original plasma.

Fractioning of Plasma, 306, August 1, 1906.

Fractions.	Proteid per c. c.	Units per c. c.	Units per gm. Proteid.
A.			
0.0—3.4	0.00321	25	7,800
3.4—3.6	0.00223	20	8,960
3.6—3.8	0.00450	45	10,000
3.8—4.0	0.00416	52	12,480
4.0—4.2	0.00408	60	14,700
4.2—4.4	0.00272	50	18,390
4.4—4.6	0.00191	40	20,890
4.6—4.8	0.00163	30	18,410
4.8—5.0	0.00111	20	18,016
5.0—5.6	0.00428	15	6,175

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Fractions.	Proteid per c. c.	Units per c. c.	Units per gm. Proteid.
B.			
0.0—3.4	0.00394	25	6,345
3.4—3.6	0.00219	20	9,114
3.6—3.8	0.00392	45	14,440
3.8—4.0	0.00335	52	15,530
4.0—4.2	0.00326	60	17,850
4.2—4.4	0.00255	55	21,600
4.4—4.6	0.00181	40	22,100
4.6—4.8	0.00147	30	20,380
4.8—5.0	0.00090	20	22,320
5.0—5.6		15	

Further fractioning after complete removal of the water precipitable globulin was done on 50 c.c. of the globulin solution Prep. 77 A. The fractioning was with a dilution of the original preparation of 1 : 20. The results are expressed per c.c. of the original undiluted preparation.

Refractionation of Prep. 77 A.

Fractions.	Proteid per c. c.	Units per c. c.	Units per gm. Proteid.
0.0—4.0	0.0408	400	9,791
4.0—4.4	0.0165	225	13,667
4.4—5.0	0.0176	375	21,306
5.0+	0.0018	75	41,722
4.8—5.5*	0.0046	150	34,783

* Made on a second 50 c.c. of the same preparation.

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Prep. 82 D was refractioned without removing the acid-water precipitable globulin. The dilution was 1 : 10.

Refractionation of Prep. 82 D.

Fractions.	Proteid per c. c.	Units per c. c.	Units per gm. Proteid.
0.0—4.0	0.07318	600	8,136
4.0—4.2	0.01779	240	13,490
4.2—4.4	0.02197	260	11,840
4.4—4.6	0.01232	160	12,990
4.6—4.8	0.00708	90	12,711
4.8—5.0	0.00511	80	15,670
5.0—5.6	0.00197	90	45,690
	0.13941	1520	
For 82 D.	0.1341	1600	

This shows a globulin of rather uniform potency per gm. from fractions 4.0—4.8 and then a marked jump from 5.0—5.6 to about three times the original potency per gram. The proportion of antitoxin in the highest fractions is less than 6 per cent. of the total units. Prepared for administration as is the ordinary antitoxic globulin, the resulting product would have a potency of from 5000-6000 units per c.c.

From the data presented it appears that the saturated NaCl soluble serum globulins of the higher fractions of plasma are uniformly much more potent per gm. proteid than are those precipitated by lower concentrations of ammonium sulphate. Between concentrations of the sulphate of 5.0 and 5.6, a small proportion of the total NaCl soluble globulin preparation (or of a higher fraction of the same) is precipitated; the solution of this globulin has a protective power of from 40,000 to 45,000 units per gm. proteid.

Further investigations directed towards the purification and concentration of antitoxins are now in progress.

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THE PRODUCTION OF DIPHTHERIA ANTITOXIN DURING THE YEAR 1906.

By Dr. EDWIN J. BANZHAF.

The amount of diphtheria antitoxic serum and citrated-plasma produced during the year 1906 was 1,680,685 c.c., of which 165,355 c.c. was serum and 1,515,330 c.c. citrated-plasma.

This amount was produced from 26 horses.

The average number of units per c.c. was 355; the highest number of units per c.c. being 1,450 and lowest 100.

By Gibson's method of concentrating and refining* we used 1,252 liters citrated-plasma averaging 400 units per c.c., and recovered 363½ liters, averaging 1,000 units per c.c.; the highest product thus produced was 2,500 units per c.c. and the lowest 400 units per c.c.

Horses, 305, 306, 307 and 308, which received toxin precipitated and concentrated by alcohol, are especially interesting, as can be seen from the following table. The first two, after only six weeks' immunization, each receiving in that time 330,750 m. l. d., produced an extremely potent antitoxic serum, each containing 1,200 units per c.c. After receiving an injection of 137,500 m. l. d. additional, and bleeding after a week, horse 305 tested 1,250 units per c.c. and horse 306 tested 1,450 units per c.c. Horse 305, receiving increasing amounts of toxin and bleeding each week, held between 1,200 and 1,250 units per c.c. for six bleedings, dropping to 1,000 units per c.c. and remaining there for three bleedings, and then slowly dropping until after 14 more bleedings the serum tested 300 units per c.c.

Horse 306, receiving each week increasing amounts of toxin, and bleeding each week, held between 1,300 and 1,450 units per c.c. for six bleedings, dropping to 1,100 units per c.c. and remaining there for four bleedings, and then slowly dropping until after 11 more bleedings the serum tested 400 units per c.c.

Horses 307 and 308, however, with exactly the same treatment, did very poorly.

* *Journal of Biological Chemistry*, i, 161, 1906, and *Studies from the Research Laboratory*, Vol. I., 1905.

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Horse 307, after receiving as much as 1,108,750 in l. d., tested only 350 units per c.c. This horse, during the next three weeks, received 825,000 m. l. d. additional, testing then only 300 units per c.c. Although receiving increasing amounts of toxin each week and bleeding on the average of once a month, horse 307 continually dropped in potency and at last bleeding tested a little below 200 units per c.c.

Horse 308, after receiving 617,500 m. l. d., tested only 250 units per c.c. This horse, during the next four weeks, received 912,500 m. l. d. additional, testing then only 200 units per c.c. Although receiving increasing amounts of toxin each week and bleeding on the average of once a month, horse 305 continually dropped in potency and at last bleeding tested 100 units per c.c.

It is probable that even under the regular treatment horses 305 and 306 would have produced high antitoxic serum, and horses 307 and 308 low antitoxic serum.

We believe that the smaller amount of deleterious substances introduced in the injections with precipitated and concentrated toxin makes it possible to give the horses larger amounts of toxin without ill effects and to continue such injections without depressing the animal's vitality.

On the whole the use of precipitated and concentrated toxin does not seem at this time to offer any advantages which are not considerably outweighed by the disadvantages, viz.: expense of alcohol, loss of toxin, labor, etc.

Horse 262 shows the enormous capacity for antitoxic production which some animals possess. This horse entered the station in February, 1904, and soon began to produce a high-grade antitoxic serum. During the year 1904 he produced 81,010 c.c. serum, averaging 496 units per c.c.; the highest potency being 700 units per c.c. and the lowest 300 units. During the year 1905 he produced 69,585 c.c. serum, averaging 400 units per c.c., the highest being 550 units per c.c. and the lowest 250 units. During the year 1906 he produced 165,010 c.c. plasma and serum, averaging 409 units per c.c., the highest being 550 units per c.c. and the lowest 300 units, making the total production up to December 31, 1906, 315,605 c.c. plasma and serum, averaging 435 units per c.c.

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Horse 299 is worthy of mention. Although a small horse, he produced, from February, 1906, to December, 1906, 180,290 c.c. plasma and serum, with an average of 462 units per c.c., the highest potency being 550 units per c.c. and the lowest 350 units per c.c.

Horse 262, during the year 1906, was bled 25 times, and horse 299 27 times, without any apparent ill effects, producing a fairly high grade antitoxic serum, with an average of 7 liters per bleeding.

One cannot but marvel at the splendid recuperative power of the animal organism.



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TABLE I.

Number of Horse.	Date of First Injection.	Number of Bleedings during 1906.	Citrated Plasma produced in c.c. during 1906.	Serum produced in c.c. during 1906.	Total Plasma and Serum produced in c.c. during 1906.	Highest Potency in Units per c.c. during 1906.	Average Units per c.c. during 1906.	Final Disposition.
234.....	August 21, 1903	11	61,350	20,050	81,400	425	398	Bled to death April 24, 1906.
262.....	February 15, 1904	25	144,800	20,210	165,010	550	409	Still in use.
264.....	February 28, 1904	2		6,760	6,760	375	350	Died from injection February 12, 1906.
268.....	April 18, 1904	2		11,190	11,190	300	275	Died, abscess in lungs February 20, 1906.
271.....	November 2, 1904	6	53,970		53,970	350	230	Bled to death, May 11, 1906.
272.....	November 2, 1904	6	29,000		29,000	350	230	Bled to death April 3, 1906.
284.....	July 13, 1905	3	12,400		12,400	200	200	Transferred to dispensary.
285.....	July 28, 1905	5	31,860	13,655	45,515	400	370	Died after bleeding March 8, 1906.
286.....	August 18, 1905	12	73,210	5,370	78,680	300	261	Died from colic May 3, 1906.
288.....	August 22, 1905	15	96,400	10,015	106,415	600	533	Died while being bled May 19, 1906.
289.....	August 22, 1905	6	21,590	6,480	28,070	200	200	Destroyed, autopsied December 26, 1906.
291.....	August 22, 1905	12	74,150		74,150	375	290	Bled to death May 16, 1906.
293.....	September 4, 1905	13	85,330		85,330	375	320	Bled to death May 16, 1906.
295.....	September 17, 1905	7	46,590		46,590	300	230	Bled to death April 6, 1906.
296.....	September 17, 1905	12	81,420		81,420	300	240	Bled to death November 28, 1906.
299.....	September 22, 1905	27	174,830	5,460	180,290	550	462	Destroyed, autopsied December 28, 1906.
302.....	November 8, 1905	4	32,300		32,300	200	200	Bled to death May 16, 1906.
*305.....	February 14, 1906	23	135,080	14,310	149,390	1,250	513	Died after injection December 21, 1906.
*306.....	February 14, 1906	21	120,600	18,410	139,010	1,450	587	Still in use.

* Horses were injected with concentrated and refined toxin.

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TABLE I. (*Continued.*)

Number of Horse.	Date of First Injection.	Number of Bleedings during 1906.	Citrated Plasma produced in c. c. during 1906.	Serum produced in c. c. during 1906.	Total Plasma and Serum produced in c.c. during 1906.	Highest Potency in Units per c.c. during 1906.	Average Units per c.c. during 1906.	Final Disposition.
*307.....	February 14, 1906	7	36,600	2,145	38,745	350	230	Still in use.
*308.....	March 6, 1906	6	31,750	2,750	34,500	250	180	Bled to death August 28, 1906.
309.....	September 29, 1906	Test.				200		Still in use.
310.....	March 20, 1906	11	71,000	1,330	72,330	725	597	Bled to death August 16, 1906.
311.....	June 23, 1906	12	57,000	18,030	75,030	950	783	Died after injection December 21, 1906.
312.....	June 23, 1906	2	8,000	5,570	13,570	450	400	Died after injection October 20, 1906.
314.....	July 2, 1906	1	134,000		13,400	250	250	Destroyed, autopsied December 28, 1906.
316.....		5	22,700	3,620	26,320	250	495	Still in use.
317.....	November 13, 1906	..	..					Still in use.

* Horses were injected with concentrated and refined toxin.

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TABLE II.

The total amount of plasma and serum produced by the older horses since entering the Station is as follows:

Number of Horse.	Serum Produced during 1903.	Average Units per c.c. during 1903.	Serum Produced during 1904.	Average Units per c.c. during 1904.	Serum produced during 1905.	Average Units per c.c. during 1905.	Plasma and Serum produced during 1906.	Average Units per c.c. during 1906.	Total Plasma and Serum produced in c.c. to December 31, 1906.	Average Units per c.c. to December 31, 1906.
234.....	30,775	475	67,265	472	60,150	375	81,400	398	239,590	430
262.....			81,010	496	69,585	400	165,010	409	315,605	435
264.....			59,305	563	40,760	382	6,760	350	106,825	432
268.....			30,325	525	36,500	440	11,190	275	78,015	413
271.....					42,710	310	53,970	230	96,680	270
272.....					35,615	312	29,000	230	64,615	271
284.....					14,190	290	12,400	200	26,590	245
285.....					24,535	412	45,515	370	70,050	391
286.....					5,010	250	78,680	261	83,690	255
288.....					5,250	400	106,415	533	111,665	466
289.....					3,740	250	28,070	200	31,810	275

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TABLE I. (*Continued.*)

Number of Horse.	Date of First Injection.	Number of Bleedings during 1906.	Citrated Plasma produced in c. c. during 1906.	Serum produced in c. c. during 1906.	Total Plasma and Serum produced in c.c. during 1906.	Highest Potency in Units per c.c. during 1906.	Average Units per c.c. during 1906.	Final Disposition.
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*308.....	March 6, 1906	6	31,750	2,750	34,500	250	180	Bled to death August 28, 1906.
309.....	September 29, 1906	Test.				200		Still in use.
310.....	March 20, 1906	11	71,000	1,330	72,330	725	597	Bled to death August 16, 1906.
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312.....	June 23, 1906	2	8,000	5,570	13,570	450	400	Died after injection October 20, 1906.
314.....	July 2, 1906	1	134,000		13,400	250	250	Destroyed, autopsied December 28, 1906.
316.....		5	22,700	3,620	26,320	250	495	Still in use.
317.....	November 13, 1906	..	..					Still in use.

* Horses were injected with concentrated and refined toxin.

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TABLE II.

The total amount of plasma and serum produced by the older horses since entering the Station is as follows:

Number of Horse.	Serum Produced during 1903.	Average Units per c.c. during 1903.	Serum Produced during 1904.	Average Units per c.c. during 1904.	Serum produced during 1905.	Average Units per c.c. during 1905.	Plasma and Serum produced during 1906.	Average Units per c.c. during 1906.	Total Plasma and Serum produced in c.c. to December 31, 1906.	Average Units per c.c. to December 31, 1906.
234.....	30,775	475	67,265	472	60,150	375	81,400	398	239,590	430
262.....			81,010	496	69,585	400	165,010	409	315,605	435
264.....			59,305	563	40,760	382	6,760	350	106,825	432
268.....			30,325	525	36,500	440	11,190	275	78,015	413
271.....					42,710	310	53,970	230	96,680	270
272.....					35,615	312	29,000	230	64,615	271
284.....					14,190	290	12,400	200	26,590	245
285.....					24,535	412	45,515	370	70,050	391
286					5,010	250	78,680	261	83,690	255
288.....					5,250	400	106,415	533	111,665	466
289.....					3,740	250	28,070	200	31,810	275

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THE RESISTANCE OF DIFFERENT STRAINS OF TYPHOID BACILLI IN CROTON TAP WATER.

By MARY E. GOODWIN, M. D., and ALICE ASSERSON, M. D.,
Assistant Bacteriologists.

Jordan,* Russell and Zeit tested the viability of typhoid bacilli in Lake Michigan water and in the water of the Chicago Drainage Canal. Russell† and Fuller, in their work on "The Longevity of the Typhoid Bacillus in Natural Waters and in Sewage," used Lake Mendota water and added sewage. Jordan, Russell and Zeit did fifteen experiments with Lake Michigan water in glass containers. The water contained from 100 to 200 saprophytes. In raw tap water the typhoid bacilli lived 6 to 7 days, in sterile tap water 25 days and in filtered tap water only 4 days. When the typhoid bacilli were put into raw tap water in parchment or celloidin sacs they lived 6 to 7 days. When the sacs were filled with sterile tap water the bacilli still survived at the end of 15 days when the experiments were discontinued. These 15 experiments seem to have been carried on with old cultures from different sources. The same workers did a good deal of work with Chicago river water when they used three recently isolated cultures. In this work the sacs were suspended in running water. In the Chicago river water the typhoid bacilli were isolated for only 3 days, and in the Drainage Canal water for only 2 days, with one exception, where it was found on the tenth day.

Russell and Fuller, in 1906, working with one of the same cultures, tested Lake Mendota water pure and with raw sewage added. In the flowing water the typhoid bacilli lived 8 to 10 days; with the addition of sewage only 3 to 5 days.

The present work was undertaken to find out the effects of Croton tap water on different strains of typhoid bacilli exposed in different ways. The following cultures were used:

Six cultures freshly isolated from the stools of two typhoid cases, in the second week, Stone 1, 3 and 5, and Ruth 1, 2 and 5; two cultures

* *Journal of Infectious Diseases*, 1904, i, p. 641.
† *Journal of Infectious Diseases*, Supplement No. 2, 1906.

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isolated six months previously, 183 and 167; Mt. Sinai and NYH_3 isolated 2 years. Pf. isolated 14 years.

Where raw water was used the typhoid bacilli were isolated from Conradi-Drigalski plates and identified by specific sera and by sugar media.

The first experiment included tests of sterile distilled, sterile tap and filtered tap water with the six freshly isolated cultures and raw tap water with the same cultures and Mt. S., NYH_3, 183 and 167.

Table I.

The three cultures from the Stone case all died on the fourth day in sterilized distilled water, and on the thirtieth day in sterilized tap water. In filtered tap water two cultures lived 9 days longer than the third. In sterile distilled water the cultures from Ruth case seemed much more resistant than those from the Stone case, as they lived 6, 17 and 18 days. In filtered tap water the relation seemed reversed, the Ruth cultures living only 21 days, while two of the Stone cultures lived 30 days.

In raw tap water, with 470 colonies developing from 1 cc. at 37° and 6,480 at 24°, one of the freshly isolated cultures, Ruth 5, lived only 5 days, while all the old laboratory cultures lived more than 11 days.

In the work with different kinds of sacs filled with sterile tap water the technique was about the same as that used by Russell and Fuller. Gelatin sacs made by covering silk with 40 per cent. gelatin and hardening in 40 per cent. formalin were used instead of agar on fiber sacs. These, after hardening, could be sterilized in the Arnold sterilizer without injury. Heavy parchment paper was used instead of the parchment tubing, as the only tubing obtainable in New York was found to contain so many small holes that it was unfit for use.

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TABLE I.

Culture.	Number of Bacilli put into the c.c.	Last Day of Isolation.
Sterile distilled water in glass receptacles—		
Stone 1	214,000	4th
" 3	179,000	4th
" 5	111,000	4th
Ruth 1	153,000	6th
" 2	88,000	18th
" 5	257,000	17th
Sterile tap water in glass receptacles—		
Stone 1	214,000	30th
" 3	179,000	30th
" 5	111,000	30th
Ruth 1	153,000	30th
" 2	88,000	12th
" 5	257,000	30th
Filtered tap water in glass receptacles—		
Stone 1	214,000	21st
" 3	179,000	30th
" 5	111,000	30th
Ruth 1	153,000	21st
" 2	88,000	21st
" 5	257,000	21st
Raw tap water in glass receptacles—		
Stone 1	214,000	12th
" 3	179,000	17th
" 5	111,000	17th
Ruth 1	153,000	13th
" 2	88,000	21st
" 5	257,000	5th
Mt. S.*	100,000	17th
N. Y. H.*	100,000	17th
183*	100,000	17th
167*	100,000	12th

* Count estimated, the plates having so many colonies that they were uncountable.

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Table II.

Parchment and Celloidin Filled with Sterile Tap Water and Placed in Running Tap Water.

Culture.	Parchment Sacs, Number of Bacilli put in per c.c.	Last Day Isolated.	Celloidin Sacs, Number of Bacilli Put in per c.c.	Last Day Isolated.
First Set of Experiments.				
Stone 1.	32,000	8th	75,000	8th
Stone 3.	129,000	8th	86,000	7th
Stone 5.	194,000	7th	54,000	6th
Ruth 1.	65,000	8th	86,000	6th
Ruth 2.	54,000	7th	10,800	6th
Ruth 5.	108,000	7th	66,400	4th
Mt. S.			10,800	4th
Pf.	64,800	4th		
Second Set of Experiments.				
Stone 1.	300,000	5th	300,000	21st
Stone 3.	285,000	7th	285,000	11th
Stone 5.	200,000	6th	200,000	4th
Ruth 1.	600,000	5th	600,000	21st
Ruth 2.	121,000	5th	121,000	4th
Ruth 5.	675,000	7th	675,000	20th
Mt. S.	531,000	7th	531,000	9th
Pf.	121,000	5th	121,000	11th

Gelatin Sacs.

Culture.	Number of Bacilli to c.c.	Last Day Isolated.
Experiment 1.		
Mt. S.	13,500	8th
Stone 1.	24,000	8th
Stone 3.	20,000	8th
Ruth 5.	20,000	8th
Experiment 2.		
Mt. S.	300,000	8th
Pf.	300,000	8th
183.	300,000	8th

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TABLE III.

The Last Day of Isolation of the Different Typhoid Cultures in the Different Sacs in Running Tap Water.

Culture.	Parchment.	Celloidin.	Gelatin.
Stone 1	8th day	21st day	8th day
Stone 3	8th day	11th day	8th day
Stone 5	7th day	6th day	
Ruth 1	8th day	21st day	
Ruth 2	7th day	6th day	
Ruth 5	7th day	20th day	8th day
Mt. S	7th day	9th day	8th day
Pf	5th day	11th day	8th day
183			8th day

Conclusions.

All the cultures except the one which had been grown on artificial media for 14 years, seemed to have about the same resistance in running tap water. The long cultivated strain generally died out a day or two earlier than the other cultures.

The resistance of typhoid bacilli in Croton tap water corresponds more nearly to the resistance in comparatively pure water such as that of Lake Mendota than to that of a polluted water such as the Chicago river water.

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REPORT OF BACTERIOLOGICAL EXAMINATION OF CROTON WATER FOR THE YEAR 1906.

By MARY E. GOODWIN, M. D., Bacteriologist.

Croton tap water at East Sixteenth street was plated in agar, and also tested for the presence of colon bacilli, once a week during the year.

Date.	Number of Colonies. 1 c.c. Plated in Agar at 37° C. for 24 Hours.	Number of Colonies. At 24° C. for 72 Hours.	Smallest Quantity of Water containing Colon Bacilli as shown by the Presumptive Test.	Gas Production. Per Cent. Gas.	Gas Production. Proportion.
January 3.....	250	3,000	1 c.c.	30	25 per cent. CO_2 H present.
January 11.....	76	141	10 c.c.	* Few bubbles	
January 22.....	200	4,800	10 c.c.	30	25 per cent. CO_2 H present.
January 30.....	27	46	1 c.c.	90	35 per cent. CO_2 H present.
February 7*.....	22	848	1/10 c.c.	25	25 per cent. CO_2 H present.
February 7†.....	166	2,640	1/500 c.c.	60	40 per cent. CO_2 H present.
February 7 §.....	20,000	40,000	1/100 c.c.	20	25 per cent. CO_2 H present.
February 7 ‖	44	2,160	1 c.c.	2	
February 8.....	880	2,048	10 c.c.	20	25 per cent. CO_2 H present.
February 15.....	46	628	No gas in 10 c.c.	..	
February 22.....	60	720	10 c.c.	15	5 per cent. CO_2 H present.
March 2.....	144	6,000	1/10 c.c	90	60 per cent. CO_2 H present.
March 10.....	290	3,140	1/10 c.c.	5	
March 17.....	50	240	5 c.c.	35	30 per cent. CO_2 H present.
March 23.....	96	1,140	10 c.c.	65	25 per cent. CO_2 H present.
March 29.....	1,270	2,250	10 c.c.	3	
April 13.....	80	1,920	10 c.c.	50	20 per cent. CO_2 H present.
April 18.....	46	260	10 c.c.	1	
April 26.....	55	1,680	1 c.c.	30	30 per cent. CO_2 H present.
May 3.....	37	500	10 c.c.	* Few bubbles	
May 9.....	480	810	10 c.c.	40	25 per cent. CO_2 H present.
May 17.....	11	130	10 c.c.	40	30 per cent. CO_2 H present.
May 24.....	22	114	10 c.c.	* Few bubbles	
May 31.....	22		10 c.c.	25	25 per cent. CO_2 H present.
June 10.....	220	3,500	1/10 c.c.	20	20 per cent. CO_2 H present.
June 14.....	28	530	1/10 c.c.	25	Apparently no CO_2 H present.
June 22.....	540	2,380	1/10 c.c. 1 c.c.	10 25	25 per cent. CO_2 H present.

* These bubbles of gas were produced by the bacterial growth and probably indicate colon bacilli.

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Date.	1 c.c. Plated in Agar at 37° C. for 24 Hours.	At 24° C. for 72 Hours.	Smallest Quantity of Water containing Colon Bacilli as shown by the Presumptive Test.	Gas Production.	
	Number of Colonies.			Per Cent. Gas.	Proportion.
June 28	147	260	1/10 c.c.	30	30 per cent. CO_2 H present.
July 5	39	179	1/10 c.c.	10	20 per cent. CO_2 H present.
July 12	36	103	1/10 c.c.	25	40 per cent. CO_2 H present.
July 19	310	340	1/10 c.c.	35	20 per cent. CO_2 H present.
July 26	80	170	1/10 c.c.	25	30 per cent. CO_2 H present.
August 1	380	1,170	1/10 c.c.	40	30 per cent. CO_2 H present.
August 10	220	430	1/10 c.c.	12	30 per cent. CO_2 H present.
August 15	50	160	1 c.c.	20	25 per cent. CO_2 H present.
August 22	400	368	1/10 c.c.	25	50 per cent. CO_2 H present.
August 30	237	700	1/100 c.c.	20	30 per cent. CO_2 H present.
September 6	400	380	1/10 c.c.	12	25 per cent. CO_2 H present.
September 15	110	530	1/10 c.c.	8	25 per cent. CO_2 H present.
September 20	44,032	440	1 c.c.	90	50 per cent. CO_2 H present.
September 24	45	780	1 c.c.	95	70 per cent. CO_2 H present.
September 28	135	860	1/10 c.c.	20	25 per cent. CO_2 H present.
October 3	18	237	1/10 c.c.	25	33⅓ per cent. CO_2 H present.
October 12	25	157	1/10 c.c.	16	60 per cent. CO_2 H present.
October 19	2,400	3,000	1/10 c.c.	95	10 per cent. CO_2 H present.
October 24	560	2,100	1/10 c.c. 1 c.c.	10 80	40 per cent. CO_2 H present.
November 1	49	440	1/10 c.c.	10	25 per cent. CO H present.
November 14	41	169	1/10 c.c.	30	25 per cent. CO_2 H present.
November 21	18	141	10 c.c.	60	50 per cent. CO_2 H present.
November 28	43	93	10 c.c.	90	50 per cent. CO_2 H present.
December 5	22	320	10 c.c.	90	40 per cent. CO_2 H present.
December 12	52	270	1 c.c.	20	25 per cent. CO_2 H present.
December 20	137	450	1/10 c.c.	30	25 per cent. CO_2 H present.

NOTE—* Specimen from Kisco Brook above drain.
† Specimen from Kisco Hotel drain.
§ Specimen from Gorham Pond Brook.
‖ Specimen from Outlet from Croton Lake.

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A STUDY OF THE PNEUMOCOCCUS DURING LONG CONTINUED CULTIVATION ON MEDIA, WITH ESPECIAL REFERENCE TO THE INULIN TEST.*

JANE L. BERRY, M. D.

The work reported in this paper was carried on under the direction of Drs. William H. Park and A. W. Williams, and consists of a study of some of the pneumococcus strains isolated at the Research Laboratory during the period between November, 1904, and August, 1905. The system of designating the strains is that used by Drs. Park and Williams in the report made to the Pneumonia Commission,[a] the description of the strains here mentioned being included in that report.

The organisms have been cultivated during the time since isolation upon blood agar, with occasional transfers to serum broth, or calcium broth. The possibility of contamination by similar organisms, during so long a period of cultivation on artificial media, has, of course, to be considered in judging results, but it is not thought that any contamination has taken place; first, because of the care exercised in transferring cultures and watching results; second, because where changes have occurred in the different strains they have been of a similar character, indicating a systematic tendency; and third, because in some cases, where a change has taken place, it has been possible to observe the different stages leading toward it, in a graduated series.

Very few strains are now found to be typical, morphologically. The majority show very small organisms and increased chain formation, namely, a more or less marked approach toward a streptococcus type. With some strains this change seems to be a permanent one, the organisms having a definite streptococcus morphology in all media; with others the change is but temporary, to be followed in later cultures by a return to a characteristic pneumococcus type, and with a few strains, while an occasional atypical culture is seen, the majority of cultures

* This is a continuation of the work reported in the 1905 volume of "Studies from the Research Laboratory."

[a] *Jour. Exper. Med.*, 1905, 7, p. 403.

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now show a morphology as typical as when the organisms were first isolated more than a year ago.

Table 1 gives the results of a study of morphology and inulin coagulation made during January, 1906. Sixty-one strains were studied at this time, selected at random from the laboratory stock. Since but one inulin test was made with each strain in this series of experiments, only general conclusions can be drawn as to inulin coagulation from this part of the work, in view of the great irregularities later observed.



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TABLE I.

Summary of Inulin Tests Made January, 1906, upon Strains of Pneumococci Isolated at Different Periods between November, 1904, and March, 1905, Compared with Similar Tests Made Soon after Isolation. All Positive in Original Tests.

	Coagulated not Later Than in Original Test		Coagulated Later than in Original Test		Not Coagulated This Time Though Coagulated in Original Test.		Total
	Char.	Not Char.	Characteristic	Not Char.	Char.	Not Char.	
Pneumonia Cases	8_{1001}	18_{1122}	15_{1112} 3d later	22_{1001} 2d later	4_{1001}	20_{1122}	
	*9_{1001}	77_{1001}	39_{1001} 2d "			21_{1122}	
	13_{1001}		*47_{1122} 2d "		62_{1112}	36_{1001}	
	46_{1001}		57_{1122} 8d "		67_{1001}	*47_{1001}	
	56_{1112}		83_{1001} 10d "		72_{1001}		
	69_{1001}				75_{1001}	73_{1001}	
	82_{1222}				76_{1001}		
					98_{1122}		
	7	2	5	1	7	5	
	9		6		12		27
Normal Cases		$N106_{1112}$			$N23_{1122}$	*$N10_{1112}$	
	$N4I_{1122}$	$N111_{1001}$	$N89_{1122}$ 8d later		$N51_{1122}$	$N11_{1122}$	
	$N124_{1001}$	$N127_{1112}$			$N52_{1122}$	$N43_{1122}$	
	$N135_{1122}$	$N113_{1001}$	$N99_{1122}$ 9d later		$N59_{1122}$	$N45_{1001}$	
	$N3\ 6_{1212}$					$N107_{1111}$	
					$N91_{1222}$		
					$N100_{1122}$		
					$N109_{1112}$		
					$N130_{1112}$		
	4	4	2	0	8	5	
	8		2		13		23
Miscellaneous Cases	C &D4_{1001}	$C23_{1112}$	$C5_{1122}$ 1d later	$Me2_{1112}$ 3d later	C& D8_{1001}	*$C4_{1122}$	
		$Me1_{1122}$			$T3_{1122}$		
	$Q5_{1122}$				$Q3_{1001}$		
					$C23_{1122}$		
	2	2	1	1	4	1	
	4		2		5		11
Total							61

* Pneumococcus mucosus.

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Twenty-seven strains were studied which came originally from cases of pneumonia. Nine of these coagulated inulin not later than in original tests. Seven were fairly characteristic morphologically, two not characteristic; six coagulated later than in original tests, five characteristic, one not characteristic; while 12 did not coagulate in these cultures, though all gave a positive reaction when first tested. When first studied at the time of isolation, 21 of the above were typical, six fairly typical.

Twenty-three strains from normal cases were studied, eight of these coagulating inulin not later than in first tests, four being characteristic, four not characteristic; two coagulated later than in first tests, both characteristic, and 13 did not coagulate at this time, although positive in original tests. When first studied 13 were typical, four not characteristic, and six atypical.

Of the 11 strains from miscellaneous cases, four coagulated inulin, not later than when first studied, two characteristic, one not characteristic; and five failed to coagulate, although positive in original tests, four of these characteristic, one not characteristic. When first studied six were typical, five not characteristic.

Unless extremely small, size of organisms has not been considered in this division into characteristic and non-characteristic, the classification being based upon the general morphological picture.

In order to ascertain the effect upon the inulin fermenting property produced by passage of the organism through animals, a certain number of strains were selected for further study, and in March, and again in June, of the present year, these were inoculated into mice and rabbits.

In these experiments no attempt was made to ascertain the smallest lethal dose, but all strains were found to have lost virulence, very large doses being required to kill the animals. In the last series of mouse inoculations (Mouse 1, Mouse 2, etc.) the organism was passed directly from one animal to another; the heart being divided, the chest cavity then washed with sterile water, and this inoculated intraperitoneally, cultures being made at the same time. By this method, a high degree of virulence was developed in some cases, mice dying within six to eight hours after inoculation, with profuse cultures of the pneumococcus given by the heart's blood. See Table 2.



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TABLE 2.

Synopsis of Characteristics of Pneumococcus Cultures before Passage through Animals, and after Passage through Last Series.

Original Culture			Original at time of Isolation	Original January, 1906	Original before Inoculation May, 1906	Mice 1	2	3	4	5	Original June, 1906
*4$_{1001}$	Morphology	Typ.	+	+∓	∓	+∓	Discarded	+	Lived		+
		Atyp.									
		Caps.	+			−		+			
	Inulin		+	−	−	−		+			−
†16$_{1112}$	Morphology	Typ.	∓	±+	+				Discarded		∓
		Atyp.				+	+	∓+		+	
		Caps.	?			?	−	−		Indic.	
	Inulin		+	−	−	±	∓	∓		+	+
36$_{1001}$ (No. 1)	Morphology	Typ.	+			Discarded				Lived	
		Atyp.		+	+		+	+	+		+
		Caps.	+				−	−	No org		
	Inulin		+	−	−		−	−	−		−
36$_{1001}$ (No. 2)	Morphology	Typ.	+	+	+	Not inoc.					+
		Atyp.									
		Caps.	+								
	Inulin		+	+	+						+
47$_{1001}$	Morphology	Typ.	+	+	∓+	∓+	+	∓+	+	+	+
		Atyp.									
		Caps.	+			−	−	−	−	No org	
	Inulin		+	−	−	∓	−	∓	∓	−	+
76$_{1001}$	Morphology	Typ.	+	∓							
		Atyp.			+	+	+	+	+	+	+
		Caps.	Indic.			Indic.	−	−	−	−	
	Inulin		+	−	−	+	∓	−	∓	∓	−
Nz3$_{1122}$	Morphology	Typ.	+	+∓	+	+	+	∓+	∓	+	+
		Atyp.									
		Caps.	+			?	+	−	+	+	
	Inulin		+	−	−	+	+	∓	∓	+	+
N91$_{1222}$	Morphology	Typ.	+	∓	+	+	+	+	Lived		+
		Atyp.									
		Caps.	+			+	+	+			+
	Inulin		+	−	−	+	+	+			+

*+∓=Plate typical, serum broth not characteristic.
†∓+=Plate not characteristic, serum broth typical.
1001=Organism isolated from plate.
1122=Organism isolated from 1st rabbit.
1222= " " " 2d "
1112= " " " mouse.

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TABLE 3.

Total Inulin Tests: 4 Cases.

Case	Strain		Date of Culture: At Time of Isolation	January, 1906	March, 1906	May, 1906	June, 1906	Total Results: −	∓	+	Total Tests
$N23_{1189}$.....	Original strain	−	..	1	2	2	3	8	..	..	11
		∓	..	..	..	..	1	..	1	..	
		+	1	..	.	..	1	..	..	2	
	M. A	−	..	..	2	..	..	2	..	..	2
	R. A.....	−	..	..	1	1	..	2	..	..	4
		∓	..	..	1	..	..	..	1	..	
		+	..	..	1	..	..	..	..	1	
	R. B.....	−	..	..	..	1	3	4	..	..	9
		∓	..	..	..	..	1	..	1	..	
		+	..	..	1	..	3	..	..	4	
	M1.....	−	..	..	..	..	..	..	..	..	6
		∓	..	..	..	..	3	..	3	..	
		+	..	..	..	..	3	..	..	3	
	M2.....	−	..	..	..	..	..	..	..	..	7
		∓	..	..	..	..	4	..	4	..	
		+	..	..	..	..	3	..	..	3	
	M3.....	−	..	..	..	..	1	1	..	..	3
		∓	..	..	..	..	2	..	2	..	
		+	..	..	..	..	..	..	..	..	
	M4.....	−	..	..	..	..	1	1	..	..	3
		∓	..	..	..	..	2	..	2	..	
		+	..	..	..	..	..	..	..	..	
	M5.....	−	..	..	..	..	1	1	..	..	5
		∓	..	..	..	..	2	..	2	..	
		+	..	..	..	..	2	..	..	2	
	M. R. 1	−	..	..	..	..	4	4	..	..	9
		∓	..	..	..	..	3	..	3	..	
		+	..	..	..	..	2	..	..	2	
	M. R. 2.....	−	..	..	..	..	..	..	..	..	4
		∓	..	..	..	..	3	..	3	..	
		+	..	..	..	..	1	..	..	1	
	Total.....							23	22	18	63

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TABLE 3.—*Continued.*

Case	Strain		Date of Culture: At Time of Isolation	January, 1906	March, 1906	May, 1906	June, 1906	Total Results: −	∓	+	Total Tests.
N91$_{1222}$.....	Original strain.....	−	..	1	2	3	6	12	..	..	15
		∓	..	..	..	..	..	..	..	..	
		+	3	..	..	..	..	..	..	3	
	M. A.....	+	..	..	1	..	..	..	..	1	1
	M. B.....	+	..	..	2	..	..	..	..	2	2
	M. C.....	−	..	..	..	1	..	1	..	..	8
		∓	..	..	1	..	1	..	2	..	
		+	..	..	1	1	3	..	..	5	
	R. A.....	+	..	..	2	..	..	..	..	2	
	R. B.....	−	..	..	..	..	..	..	..	..	5
		∓	..	..	..	..	1	..	1	..	
		+	..	..	1	1	2	..	..	4	
	M1.....	−	..	..	..	..	2	2	..	..	2
		∓	..	..	..	..	..	..	..	..	
		+	..	..	..	..	..	..	..	..	
	M2.....	−	..	..	..	..	3	3	..	..	3
		∓	..	..	..	..	..	..	..	..	
		+	..	..	..	..	..	..	..	..	
	M3.....	−	..	..	..	..	2	2	..	..	8
		∓	..	..	..	..	2	..	2	..	
		+	..	..	..	..	4	..	..	4	
	M. M. 1.....	−	..	..	..	..	..	..	..	..	8
		∓	..	..	..	..	..	..	..	..	
		+	..	..	..	..	8	..	..	8	
	M. M. 2.....	−	..	..	..	..	1	1	..	..	7
		∓	..	..	..	..	2	..	2	..	
		+	..	..	..	..	4	..	..	4	
	M. R. 1.....	−	..	..	..	..	..	..	..	..	4
		∓	..	..	..	..	..	..	..	..	
		+	..	..	..	..	4	..	..	4	
	M. R. 2.....	−	..	..	..	..	..	..	..	..	5
		∓	..	..	..	..	1	..	1	..	
		+	..	..	..	..	4	..	..	4	
	Total.....							21	8	41	70

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TABLE 3.—*Continued.*

Case	Strain		Date of Culture: At Time of Isolation	January, 1906	March, 1906	May, 1906	June, 1906	Total Results: −	∓	+	Total Tests
4₁₀₀₁	Original strain	−	..	1	2	3	6	12	..	..	13
		∓	..	..	..	..	..	..	..	..	
		+	1	..	..	..	..	..	..	1	
	M. A.	−	..	..	2	..	..	2	..	..	2
	M1	−	..	..	..	2	2	4	..	..	4
		∓	..	..	..	..	..	..	..	..	
		+	..	..	.	..	..	..	..	..	
	M3	−	..	..	..	..	..	..	..	..	4
		∓	..	..	..	1	1	..	2	..	
		+	..	..	..	1	1	..	..	2	
	Total							18	2	3	23

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TABLE 3.—*Continued.*

Case	Strain	Date of Culture	Morphology			Inulin					Total Tests
			Typical	Atypical	Capsule	Total Results					
						−	Sl.	∓	+	+†	
$N62_{1122}$..	Original	Mar., '05	..	+	−	4	..	..	..	..	4
	"	Jan., '06	∓	..		1	..	..	..	..	1
	"	Mar., '06	..	+		1	..	..	..	..	1
	*R. A.....	" '06	∓	..	No org.	..	..	..	1	..	1
	R. B.....	" '06	..	+	No org.	1	..	..	..	..	1
	M. A.....	" '06	..	+	+	1	..	..	..	..	1
	Original	May, '06	..	+		1	..	..	..	..	1
	"	June, '06	..	+		3	1	2	2	..	8
	R. A.....	" '06	..	+		2	..	2	1	..	5
	†M. R. 1..... ...	" '06	±	..	−	1	1	10	2	..	14
	M. R. 2.....	" '06	..	+	No org.	2	..	3	1	..	6
	M. R. 3.....	" '06	±	..	−	1	..	2	1	..	4
	M. R. 4.....	" '06	..	+	Indic.	1	..	3	1	..	5
	R. R.....	" '06	..	+	−	..	..	..	3	1	4
	Total..... ..					19	2	22	12	1	56

NOTE.

Total coagulating cultures in black-face figures.
M. A.=first mouse inoculated.
M. 1.= " " " of second series.
M. M. 1.=first mouse inoculated from mouse of first series.
M. R. 1.= " " " from rabbit.
R. A.=first rabbit inoculated.
R. B.=rabbit inoculated from rabbit.
*Plate atypical; serum broth typical.
†Plate typical; serum broth atypical.

Table 3 gives the complete record of inulin tests made with four strains, the results in these cases being typical of those given by the other cases studied.

Of the comparatively small number of cultures studied only two have coagulated the inulin medium in recent tests which failed to coagulate it when first isolated. These two, 16_{1112} and N 62_{1122}, were not included in the January table.

No. 4_{1001} originally a large, typical pneumococcus, showing capsules and coagulating inulin, has in these tests shown a variable morphology,

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with loss of capsules and inulin-fermenting power, but after passage through Mouse 3 there is again a typical morphology, with capsules, and two cultures showing complete and two partial inulin coagulation. Of a total of 23 inulin tests, three are positive, two partial, and 18 negative. To this list may be added at least six coagulations not recorded, made during the first few months after isolation, when the organism was frequently tested and always gave prompt positive results. The negative tests have all been made since the beginning of January.

No. 16_{1112} which has shown a mixed streptococcus and pneumococcus morphology throughout cultivation, and was negative to inulin when first tested, now gives positive inulin coagulation in cultures, both from the original strain and after passage through Mouse 5. Of the total inulin tests three are postive, eight partial, and 20 negative.

No. 36_{1001} has been of special interest. It was originally a very typical pneumococcus, showing capsules, coagulating inulin promptly, and very virulent for animals. It now shows in two series of cultures from the same strain, entirely opposite characteristics. The one series consists of later transfers from a series which in the summer of 1905 was carried on for many generations on special media, namely: horse blood agar, rat blood agar, rabbit blood agar, and mouse blood agar; cultures being then tested for virulence and inulin coagulation. Originally virulent for mice in doses of 1/1,000,000 c.c., rabbits 1/5,000, and rats 1/10 c.c., all cultures were now found to have decidedly lost in pathogenic power for these animals. Inulin was still promptly coagulated in seven cultures. Tried again in October of the same year, the cultures were found to be non-virulent for rabbits in 4 c.c. doses, and no longer killed mice unless given in large doses of a strong emulsion. No further tests of virulence have been made with this series. The cultures are still fairly typical morphologically, have recently coagulated inulin, and have given 12 positive coagulations during the past six months.

The contrasting series of 36_{1001} consists of the regular laboratory stock cultures. In these a complete change has taken place, and the organism now grows as a typical streptococcus in all media, is cultivated with difficulty, and shows no reaction with inulin serum water. This change has been a gradual one, all degrees of morphology having

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been observed between the two types of organisms, and repeated fishing from atypical colonies have given cultures of a similar mixed growth. Of 56 total inulin tests, 23 have been positive, 33 negative.

No. 47_{1001} is of peculiar interest on account of its morphological changes. Originally a typical *Pneumococcus mucosus*, it has shown in subsequent cultures a varying morphology, sometimes of a typical pneumococcus and again of a streptococcus type, with occasional reversions to the original *Pneumococcus mucosus*, the latter form generally appearing only after passage through animals, especially mice, or when a fresh transfer is made after a long resting period. After persisting for a varying number of transfers (from one or two to eight) the *Pneumococcus mucosus* form is again lost, the organism reverting to the pneumococcus, the streptococcus, or to mixed types. Table 4 shows the variations observed after continued cultivation on various media, according to plan described under 36_{1001}. In the transfers following those given in the table all the horse blood agar cultures showed the *Pneumococcus mucosus* form, which persisted for eight weekly transfers, the penumococcus, the streptococcus, or the mixed forms then reappearing. In January last a typical *Pneumococcus mucosus* was again obtained from this series, the form persisting for several transfers.

The changes of form observed in this organism are in unison with the results previously obtained at this laboratory, and are a confirmation of the intimate connection and interchangeable nature of the pneumococcus and *Pneumococcus mucosus* types of organism. (See Table 4.)

No. 47_{1001} was originally virulent for mice in 1/100,000 c.c., rats 1/100 c.c. Tested after growth on the various blood agars, a loss of virulence was found in all cultures. Some difference was noticed in cultures according to the media upon which growth had been carried on, but upon the whole the results were irregular, and without further tests no definite conclusion could be drawn upon this point.

The coagulation of inulin, while at first prompt, has since been irregular with this organism. Of 54 inulin tests, 13 are positive, 6 partial, and 35 negative.

No. 76_{1001} is another organism which has shown a marked change. Originally a typical pneumococcus, coagulating inulin promptly, in

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these tests it has appeared as a characteristic short streptococcus, and with the exception of two positive coagulations from Mouse 1, and four partial reactions from other animals, all recent inulin tests have been negative. Of 31 total inulin tests three are positive, four partial, and 24 negative.

N 62_{1122} has shown features of peculiar interest and in the summary results have been given more in detail. With the exception of a few cultures which more nearly approach the pneumococcus type, this organism has presented the appearance of a typical streptococcus during the entire period of cultivation. It was negative to inulin when first isolated and in many subsequent tests, but in the recent series of experiments coagulations have been obtained with cultures from each animal, and also from the original strain. Of 56 inulin tests, 13 have been positive, 24 partial, and 19 negative.

N 23_{1122} and N 91_{1222} were both originally typical pneumococci, showing capsules, coagulating inulin promptly, and virulent for animals. With the exception of an occasional culture showing increased chain formation, both strains have been typical in morphology throughout, N 91_{1222} especially showing the most typical large pneumococci, but the record of inulin tests shows that with both strains many cultures have failed to coagulate inulin. After passage through animals coagulation again occurs, and recently positive inulin tests have also been obtained from the original strain of N 23. N 23_{1122} in 63 inulin tests shows 18 positive, 22 partial, and 23 negative; N 91_{1222} in a total of 70 tests gives 41 positive, eight partial, and 21 negative; we have therefore but 35 per cent. and 58.5 per cent. respectively of positive inulin tests for these two very typical strains of penumococci.



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TABLE 4.

Showing Variations in Morphology (Pneumococcus and Pneumococcus mucosus Forms), and Inulin Coagulation of 47100 in August, 1906, After Continual Cultivation on Special Media. First Series Transferred Daily; Second Series After Interval of Nine Days.

Series.		Date or Culture.	Medium.	Total Transfer No.	Transfer on Special Medium.	Typ. Pneumococcus mucosus.		Typ. Pneumococcus.		Inulin Coagulation.
						Growth.	Smear.	Growth.	Smear.	
Horse Blood Agar	Transferred daily...	8/9	Horse bl. agar.	90	30	∓	∓			
		8/9	Serum broth..	90			+			
		8/10	Inulin.....				+			∓
		8/11	Bl. agar plate.					∓	∓	
	Transferred 9th day.	8/9	Horse bl. agar.	85	25	+	+			
		8/9	Serum broth..	85					+	
		8/10	Inulin.....				+			+
		8/11	Bl. agar plate.			+	+			
Rabbit Blood Agar	Transferred daily....	8/9	Rabbit bl. agar	101	41	∓	∓			
		8/9	Serum broth..	101			∓			
		8/10	Inulin.....				∓			-
		8/11	Bl. agar plate.					+	+	
	Transferred 9th day.	8/9	Rabbit bl. agar	96	35	∓	∓			
		8/9	Serum broth..	96			∓			
		8/10	Inulin				∓			+
		8/11	Bl. agar plate.					∓	∓	
Rat Blood Agar.	Transferred daily....	8/9	Rat bl. agar ..	101	40	∓	∓			
		8/9	Serum broth..	101			∓			
		8/10	Inulin.....				∓			+
		8/11	Bl. agar plate.			...		+	+	
	Transferred 9th day.	8/9	Rat bl. agar ..	96	35	+	+			
		8/9	Serum broth..	96			∓			
		8/10	Inulin.....				∓			+
		8/11	Bl. agar plate.					∓	∓	

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TABLE 4 (*Continued.*)

Series.		Date of Culture.	Medium.	Total Transfer No.	Transfer on Special Medium.	Typ. Pneumococcus mucosus.		Typ. Pneumococcus.		Inulin Coagulation.
						Growth.	Smear.	Growth.	Smear.	
Mouse Blood Agar	Transferred daily....	8/9	Mouse bl. agar	102	11	∓	∓			
		8/9	Serum broth..	102			∓			
		8/10	Inulin..... ...				∓			+
		8/11	Bl. agar plate.			∓	∓			
	Transferred 9th day..	8/9	Mouse bl. agar	97	6	∓	∓			
		8/9	Serum broth..	97			∓			
		8/10	Inulin.....				∓		...	+
		8/11	Bl. agar plate.					∓	∓	

Blood agar and serum broth cultures made from blood agar of August 8, in each case. Plates made from inulin cultures.

Considered as a whole, it will be seen that the entire series of inulin tests here reported is characterized by a marked irregularity as to coagulation results, this being the case not only with atypical, but also with typical strains.

As the tables show, passage through animals seems generally to have a favorable influence upon the inulin fermenting power of the pneumococcus, an effect best shown in the strain from N 91.

The number of organisms inoculated into the inulin medium is often found to be an important factor, as coagulations have several times been obtained by the use of a strong emulsion of organisms after many negative results with cultures of ordinarily abundant growth. This, however, is not an invariable rule, as good coagulations have been obtained in some cases from cultures showing a very poor growth, while other cultures of the same inulin lot, containing a heavy growth of the same organism, have failed to coagulate.

The growth of the organisms in inulin has been studied in all cases, either in smears or by blood-agar streak plates, whenever possible, by both methods, and no cultures have been included in the report which have not been found to contain an abundant number of organisms; the

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large number discarded on account of insufficient growth causing the irregularity in the number of tests recorded for each strain. All inulin cultures were incubated for two weeks before being classed as negative.

The inulin serum water used in these tests was made according to the usual method, with one-third ox serum, two-thirds distilled water, and 1 per cent. inulin powder, each lot being tested with laboratory stock cultures before being used in these experiments. The inulin powder used in some of the earlier work was extracted by Dr. Gibson at the Research Laboratory from dandelion roots, a preparation which gave very good results. For all the other tests the medium used was prepared from Merck's inulin (white). Various stocks of this powder, procured at different periods were found to differ greatly, and one whole stock had to be discarded, as no reliable tests could be obtained from it. In all of the work done in March and subsequently but one stock of Merck's white inulin has been employed, 5 c.c. of the inulin serum water being inoculated with ½ c.c. of culture in each test. The greatest variation has been found between lots of inulin serum water made at different dates from this one inulin powder, and from the same or different lots of ox serum. Tubes inoculated with the same strain show all stages between entirely negative and positive results and an equal irregularity is found in many cases when tubes of the same or different lots of inulin medium are inoculated simultaneously with the contents of the same culture tube. Some difference was noticed between lots of inulin medium according to the supply of ox serum used, but at the end of the time-limit differences based upon this distinction were either very slight or no longer noticeable. Table 5 gives the results of the tests made with N 23_{1122} and N 91_{1222} in five lots of inulin medium made of the same inulin powder, and two different lots of ox serum.

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TABLE 5.

Results of Tests with Five Lots of Inulin Serum Water. All Made from Same Inulin Powder (Merck's White) from Two Lots of Ox Serum—2 Cases.

Case.	Strain.	Tests Grouped under Lot of Inulin Medium Used.											Total Tests.
		Tubes Inoculated.						Results.					
		1st Ox. Ser. Lot.			2d Ox. Ser. Lot.			Coagulation.					
		1	2	3	4	5		—	SL	+	+	++	
$N23_{11\,88}$	Orig	1	..	..	..	..	..	1	..	..	..	..	5
		..	1	..	..	..	..	1	..	..	..	..	
		..	..	1	..	..	..	1	..	..	..	..	
		..	..	..	1	..	..	..	..	..	1	..	
		..	..	..	..	1	..	..	..	1	..	..	
	M 1	1	..	..	..	..	..	..	..	..	..	1	6
		..	..	1	..	..	..	..	..	..	1	..	
		..	..	..	3	..	..	..	..	2	1	..	
		..	..	..	..	1	..	..	..	1	..	..	
	M 2	1	..	..	..	..	..	..	..	..	..	1	7
		..	..	2	..	..	..	..	..	..	1	1	
		..	..	..	3	..	..	..	..	3	..	..	
		..	..	..	..	1	..	..	..	1	..	..	
	M 3	..	1	..	..	..	..	1	..	..	..	..	3
		..	..	..	1	..	..	..	..	1	..	..	
		..	..	..	..	1	..	..	..	1	..	..	
	M 4	..	1	..	..	..	..	1	..	..	..	..	3
		..	..	..	1	..	..	..	..	1	..	..	
		..	..	..	..	1	..	..	..	1	..	..	
	M 5	..	1	..	..	..	..	1	..	..	..	..	5
		..	..	1	..	..	..	..	..	..	..	1	
		..	..	..	2	..	..	..	..	1	1	..	
		..	..	..	..	1	..	..	..	1	..	..	

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TABLE 5 (*Continued.*)

Case.	Strain.	Tests Grouped under Lot of Inulin Medium Used.											Total Tests.
		Tubes Inoculated.						Results.					
		1st Ox Ser. Lot.			2d Ox Ser. Lot.			Coagulation.					
		1	2	3	4	5		−	SL	+	+	++	
$N23_{1122}$	R. B.	..	..	1	..	..	..	..	..	..	1	..	5
		..	..	..	1	..	..	..	..	1	..	..	
		..	..	..	..	3	..	2	..	..	1	..	
	MR 2.	..	1	..	..	..	..	1	..	..	..	..	10
		..	..	3	..	..	..	2	..	..	1	..	
		..	..	..	3	..	..	..	..	2	1	..	
		..	..	..	..	3	..	2	..	1	..	..	
	MR 2.	..	..	1	..	..	..	..	..	..	1	..	3
		..	..	..	1	..	..	..	..	..	1	..	
		..	..	..	..	1	..	..	..	..	1	..	
	Total.	..	..	..	..	..	47	13	..	18	**12**	**4**	47
Tests Grouped According to Ox Serum used.	1st Ox Serum.	3	..	..	..	..	..	1	..	..	..	2	
		..	5	..	..	..	..	5	..	..	..	..	
		..	..	10	..	..	..	1	..	2	5	2	
		..	..	..	..	..	18	7	..	2	**5**	**4**	18
	2d Ox Serum.	..	..	..	16	..	..	..	..	11	5	..	
		..	..	..	..	13	..	4	..	9	2	..	
		..	..	..	..	..	29	4	..	18	**7**	..	29

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TABLE 5 (*Continued.*)

Case.	Strain.	Tests Grouped under Lot of Inulin Medium Used.												Total Tests.
		Tubes Inoculated.						Results.						
		1st Ox. Ser. Lot.			2d Ox. Ser. Lot.			Coagulation.						
		1	2	3	4	5		−	S L	+	+	++		
N 91$_{1922}$	Orig.	1	..	..	..	..	..	1	..	..	..	..		6
		..	1	..	..	..	..	1	.	..	..	..		
		..	..	1	..	..	..	1	..	..	..	..		
		..	..	..	1	..	..	1	..	..	..	..		
		..	..	..	..	2	..	2	..	..	..	..		
	M 1.	..	..	..	1	..	..	1	..	..	..	..		2
		..	..	..	..	1	..	1	..	..	..	..		
	M 2.	..	1	..	..	..	..	1	..	..	..	..		3
		..	..	..	1	..	..	1	..	..	..	..		
		..	..	..	..	1	..	1	..	..	..	..		
	M 3.	..	1	..	..	..	..	1	..	..	..	..		5
		..	..	3	..	..	..	1	1	..	1	..		
		..	..	..	3	..	..	..	..	..	3	..		
		..	..	..	..	1	..	..	..	..	1	..		
	R. B.	..	..	1	..	..	..	..	..	1	..	..		3
		..	..	..	1	..	..	..	..	..	1	..		
		..	..	..	..	1	..	..	..	..	1	..		
	MR 1.	..	1	..	..	..	..	..	..	..	1	..		4
		..	..	2	..	..	..	..	..	..	1	1		
		..	..	..	1	..	..	..	..	..	1	..		
	MR 2.	..	..	3	..	..	..	..	..	..	2	1		7
		..	..	..	2	..	..	..	..	1	1	..		
		..	..	..	..	2	..	..	..	..	2	..		
	M 3.	..	..	1	..	..	..	..	..	..	..	1		1
	M. D.	..	1	..	..	..	..	..	..	1	..	..		4
		..	..	2	..	..	..	..	..	..	2	..		
		..	..	..	..	1	..	..	..	..	1	..		
	MM 1.	..	..	4	..	..	..	..	..	..	3	1		8
		..	..	..	3	..	..	..	..	..	3	..		
		..	..	..	..	1	..	..	..	..	1	..		

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TABLE 5 (*Continued.*)

Case.	Strain.	Tests Grouped under Lot of Inulin Medium Used.											
		Tubes Inoculated.						Results.					
		1st Ox Ser. Lot.			2d Ox Ser. Lot.			Coagulation.					Total Tests.
		1	2	3	4	5		—	SL	+	+	++	
No. 1888	MM 2.	..	1	..	..	..	..	1	..	..	..	..	6
		..	..	2	..	..	..	..	..	..	1	1	
		..	..	..	1	..	..	..	..	1	..	..	
		..	..	..	..	2	..	..	..	1	1	..	
	Total.	..	..	..	..	..	52	14	1	5	27	5	52
Tests Grouped According to Ox Serum used	2d Ox Serum	1	..	..	..	..	..	1	..	..	..	..	..
		..	6	..	..	..	..	4	..	1	1	..	..
		..	..	19	..	..	..	2	1	1	10	5	..
		..	..	..	..	..	26	7	1	2	11	5	26
	1st Ox Serum	..	..	..	14	..	..	3	..	2	9	..	..
		..	..	..	..	12	..	4	..	1	7	..	..
		..	..	..	..	..	26	7	..	3	16	..	26

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A few cultures of streptococci recently obtained from various pyogenic sources were inoculated into animals, and the morphology and inulin growth in media studied as above. One of these strains resembles a pneumococcus, and one a *Pneumococcus mucosus* in several cultures, and all show capsules after passage through animals. Table 6 gives a summary of results and shows that all inulin cultures remain negative. These experiments are too few to be of any importance, but are given as controls, and because it seems possible that further study in this direction may establish the pneumococcus nature of some organisms now classed as streptococci.

TABLE 6.

Synopsis of Characteristics of Streptococcus Cultures Before and After Passage Through Animals.

Case.			Original Strain.	Rabbits.	Mice.					
					M.A.	M.B.	M.C.	M.D.	M.E.	M.F.
* Trachoma.....	Morphology	Typ.	+	+		+	∓	∓	∓	∓
		Atyp.			+			...		
		Caps.		+	−	+	+	+	+	+
	Inulin		−	−	−		−	−	−	−
† Empyema.....	Morphology	Typ.	+	∓	+	∓	+	Lived		
		Atyp.								
		Caps.		+	+	+	+			
	Inulin		−	−	−	−	−			
Puerperal Septicæmia	Morphology	Typ.	+	+	+	Not inoculated				
		Atyp.								
		Caps.		+	?					
	Inulin		−	−	−					

Tests of the various lots of inulin powder and of the inulin medium before inoculation have so far led to no explanation of the varying coagulation results. No differences could be detected between the

* Many cultures suggest resemblance to Pneumococcus mucosus, most marked in cultures from Mouse A.

† Cultures from rabbit and from Mouse B suggest resemblance to pneumococcus.

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several stocks of inulin powder, the rejected stock appearing to be identical with the rest except that coagulations could not be obtained with the medium made from it. Nine lots of the inulin medium made at different dates from good powder were tested for acidity before inoculation with organisms. Five c.c. titrated with N/50 NaOH and phenolphthalein were found to vary between neutral and 1.4 acid, the majority being about 0.2 acid.

Flasks containing 50 c.c. of inulin medium after titration for initial acidity were inoculated each with 5 c.c. of one of the cultures of the strains studied, and inoculated for 10 days. Some of the contents of these flasks was pipetted out every one or two days and tests made of reactions and growth in the inulin medium. Two flasks inoculated with N 91_{1222} showed coagulation nearly complete in 24 hours, with acidity 2.2 and 2.8 respectively, organisms very characteristic, and no further tests possible because of coagulation. All flasks inoculated with other organisms gave a negative coagulation result, and showed practically no increase in acidity, while at the same time the count of plate colonies showed a good growth of organisms present. Table 7 gives the results of these tests with four of the previously mentioned strains and also with one strain of streptococci; the highest acid production being given in each case compared with the reaction before inoculation, and with the highest plate count.

Table 7.

Results of Titration and Plate Count with Non-Coagulation of Inulin Flask Cultures—5 c.c. Titrated with N/50 NaOH.

Strain.	Titration.		Plates.
	Before Inoculation.	Highest Acidity.	Highest Count to 1 c.c.
16_{1112}	1.4	1.9	98,102,440
47_{1001}	1.1	1.7	128,142,000
$N23_{1122}$	0.4	0.9	45,896,050
$N62_{1122}$	0.2	1.7	73,710,000
Streptococci	0.2	1.8	33,015,000

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Further work in this direction was contemplated but has not yet been carried out, the same being true of plans to attempt to ascertain the nature of the acid produced by the growth of the pneumococcus in the inulin medium.

Conclusions.

Many strains of pneumococci, after longer or shorter periods of cultivation on artificial media, are found to undergo decided changes in morphology, virulence, and power to ferment inulin.

These changes may be temporary, disappearing when the organisms are placed under favorable conditions, but in some cases they seem to be permanent, the organisms having apparently undergone a complete change from their original characteristics.

The change in morphology is toward a more or less complete approach to a streptococcus type, some tendency in this direction appearing in certain cultures of every organism studied.

The presence of the pneumococcus and of the *Pneumococcus mucosus* types in organisms of the same strain shows the close relationship and interchangeable character of these two types.

The change in virulence corresponds with that usually found after long artificial cultivation. By transfers directly from animal to animal a rapid increase of virulence is developed.

The change in inulin fermenting power represents a marked irregularity of reaction constituting the chief feature in this series of tests which, including those made at time of isolation, consists of 452 inulin tests made with cultures from 63 strains of organisms.

A large number of negative tests have been given by very typical pneumococci and, on the other hand, many coagulations have been obtained from cultures of a definite streptococcus type.

Great variations have been found between different stocks of inulin powder and also between different lots of inulin medium made from the same powder and inoculated with organisms of the same strain.

Passage through animals seems, in many cases, to have a favorable effect upon the inulin fermenting power of the pneumococcus.



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The use of strong emulsions of organisms sometimes produces coagulation, where ordinarily abundant cultures give only negative results.

The conclusion drawn from these experiments is that while coagulation of inulin is valuable corroborative evidence in favor of the pneumococcus nature of an organism, yet the irregular nature of the reaction may make it a fruitful source of differences and errors in diagnosis if too much reliance is placed upon this test. It is evident that no organism can be rejected as a pneumococcus because of one, or even of several, non-coagulating inulin cultures. Especially is this true of cultures which have been grown for some time on artificial culture media.

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LABORATORY NOTES ON SPIROCHAETA OBERMEIERI FOUND IN NEW YORK.

ADELE OPPENHEIMER, M. A.

The spirochete studied by us was originally obtained by Dr. Norris from the blood of a patient in the service of Dr. Carlisle[2] in Bellevue Hospital. This organism was grown by Dr. Norris in white rats. Through the kindness of Dr. Flournoy, pathologist to Bellevue Hospital, we received some spirochetal rat's blood; thereafter the parasite was kept alive by means of passage from rat to rat according to the method of Dr. Norris,[8] Director of Laboratories of Bellevue and Allied Hospitals.

In the proceedings of the New York Pathological Society, December, 1905 (p. 163) Dr. Norris reported that he had succeeded in growing the spirochete in the blood of rats, the first time in history that Spirillum Obermeieri [a] had been grown in this animal. Some of this spirochetal blood he kindly gave either directly or indirectly to various workers and we herewith wish to report in what respects our observations and conclusions agree and disagree with those not only of Norris and his associates,[8] but also with those of Novy and Knapp[9] and of Breinl (Lancet, 1906, June 16, No. 4320, p. 1690).

Historical Sketch.

The papers of Schaudinn and Hoffmann on Spirochaeta pallida [b] aroused a fresh interest in Spirochaeta Obermeieri. Investigations of the latter had been carried on ever since Obermeier, in 1873, reported the discovery of this organism in the blood of those suffering from relapsing fever. Through these long years much had been learned concerning this parasite, as can be seen by consulting any text book on bacteriology or by perusing the masterly articles of Wladimiroff[11] and Hödlmoser.[4]

a It is not definitely known whether the New York spirochaete is *Spirillum Obermeieri* or not.

b Arbeiten kaiserl. Gesundheitsamte, Berlin 1905, April 10, xxii. *Zweites Heft.* 527; *Deutsche Med. Wochenschr.,* 1905, May 4, xxxi, p. 711.

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Until very recently it was classed with the bacteria, but now owing to the work of Schaudinn and others, one of the questions to be solved is whether the spirillum of Obermeier is or is not a protozoon.

The Spirochaeta Obermeieri (New York) was observed by us in the rat, in vitro, on the slide, and in the hanging drop. Under these heads we desire to call attention to such of our observations as we consider have not been sufficiently emphasized by others, such as have not been recorded by others, such as differ from those of others, such as have led us to disagree with the conclusions of others.

The smears were stained with Giemsa's or Wright's or Goldhorn's blood stain.

In the Rat.

1. It has been claimed by some observers that the length of time that the spirochetes are found in the blood constitutes one of the chief points of difference between the Spirochaeta Duttoni of African tick-fever and Spirochaeta Obermeieri, and indicates that each of the two organisms represents a distinct species.

As a result of subcutaneous injection according to our method of procedure, the parasites usually appeared in the blood of the tail within 96 hours after inoculation; disappeared *after* 24 hours, and did not reappear; *and this was true from the very beginning of our work in November and December,* 1905. Our work was stopped in March, 1906.

In our rat 26[c] the facts on hand might be interpreted as fifteen days' presence of the organism in the peripheral blood; they *must* be interpreted either as more than three days' presence or as more than two relapses. Not Norris, Pappenheimer and Flournoy,[8] nor Novy and Knapp[9] nor we know that there are relapses in rats infected with Spirochaete Obermeieri (New York); if this is the case, we are not aware of the fact.

According to Breinl (Lancet, 1906, No. 4320, p. 1690)[d] there are never more than two relapses in rats inoculated with the New York

c See Table I.

d See also Breinl and Kinghorn, p. 48 (7).

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strain, and the maximum presence is three days for the New York strain and 17 days for the African strain.

See our rats 21, 26, 42, 49, in which the parasites were apparently found in the circulating blood for more than three days. Norris and his fellow workers,[8] too, state that the New York spirochete is in the peripheral blood of rats 1 to 5 days. And in May, 1906, Novy and Knapp record that "as a result of the consecutive passage of the spirilla through this long series, increase in virulence, if this expression can be used, was noted. . . . Usually, however, the spirilla now disappear in about 60 hours after inoculation. Exceptionally a rat is met with in which the period of infection lasts three or four days."

However, in *January*, 1906, Novy made the following statement in the "Journal of the American Medical Association" (vol. xlvi., No. 2): "The persistence of the spirochetes of tick-fever in the blood of rats for 3 to 8 days, as shown by Dutton and Todd, would indicate that their organism, though closely related, is nevertheless different from that studied by us. It goes to show that the tick-fever of Africa and the relapsing fever of Europe are due to different species of spirochetes."

Either our rats are not like Novy's, or our method of passage is unlike his in points that are essential. As a matter of fact he injected intraperitoneally, we subcutaneously[e]; and evidently he injected more organisms than we. That a difference of method can influence the day of appearance of the parasites in the blood is shown by the fact that whenever our blood was not used at once, but kept a day before using it for inoculation, the appearance, too, of the spirilla in the circulating blood of the inoculated rat, was delayed. In the second place, it should be noted that under these conditions the parasite was never found in the peripheral blood more than two days in succession[f]. We have not attempted to learn whether there is a loss in the number of living spirochetes or in their vigor when the diluted blood stands a day.

e Except in cases of rats 3, 4, 5 and 6, which were injected intraperitoneally.

f Breinl and Kinghorn (7), state of Spirochaeta Duttoni: "the incubation period varied directly with the amount of infected blood injected and with the mode of inoculation. The parasite multiplied more or less rapidly depending on the dosage."

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Such an investigation is, of course, difficult to carry out with organisms that one has not succeded in cultivating on artificial media.

These studies show that more work needs to be done before the relationship between the New York and African strains can be determined (see also No. 8, p. 144 and No. 3, p. 142 [g].

2. The symptoms of the rats were not studied, but it was noted that not a few of the rats were restless when they had spirochetes in the circulating blood, just as they are when affected with other diseases. This restlessness helped us to pick out the rat with spirochetal blood on any one day [h].

3. Rat 26 apparently died of spirillosis. Novy and Knapp[9] particularly state that they had no such deaths.[i] Of all our rats this was the only one which did not keep itself clean.

4. Sometimes the parasites were present in great numbers and at others could only be found by searching several microscopic fields; and these variations were, too, apparently without any law or order. Such, as well, is the case in European relapsing fever in man.

5. Rats 8 and 25 injected with blood the day after the disappearance of the organisms from that blood did not become infected. (See Conclusion 5, p. 146.)

6. Rats 12 and 15 injected with blood two days before the appearance of the spirochetes in that blood did not become infected. (See Conclusion 5, p. 146.)

7. In rat 47 the inoculation of living organisms did not result in an infection. Was 47 more resistant than the average white rat?

According to Novy and Knapp,[9] another plausible explanation for these "resistant" exceptions is the injection of only a few living spirochetes and a large dose of immune bodies. This explanation might hold for our rats 51 and 52; but it does not hold for 47, since though inoculated with the same material on the same day 48 became infected.

g Breinl (*Lancet*, 1906), states that the spirochaete of the African tick-fever is of a species differing from that of the New York spirochaete in that each confers a relatively active immunity against itself but not against the other.

h The rats were in charge of Mr. J. Behan, Laboratory Assistant.

i So also Breinl and Kinghorn, p. 49 (7).

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8. The presence or absence of the spirochetes in the spleen is particularly important in the light of Metchnikoff's findings in the case of the relapsing fever of Europe. He found phagocytic destruction of the organism in the spleen during the apyrexial period.

At autopsy, judging from smears, the spirilla were present in the peripheral blood and in the heart only. They were never present in the spleen, kidney, suprarenal body, lung, or liver (see Table IV.). Our results here agree with those of Norris, Pappenheimer and Flournoy[8] and disagree with those of Novy and Knapp[9] who found spirochetes in all the organs of the rat.

It should be noted that rat 31 was dissected before and 34 after the appearance of the parasites in the circulating blood.

Though rat 62 showed organisms in the blood of the tail on February 6th, at autopsy on that day no organisms were found in the heart's blood. Perhaps the height of the infection had not yet been reached. Perhaps rats 51 and 52 did not become infected because they were injected with the blood of rat 49 before the climax in 49 was reached.

In Vitro.

1. One of the chief aims of workers with Spirochaeta Obermeieri is to grow these on artificial culture media.

In vitro the organisms remained alive in rat's blood, but as far as our work is concerned the various media have proven themselves to be simply the support on which or in which the rat's blood rested. The spirillum merely held its own in vitro, it increased slightly if at all, and we cannot say that we had a culture.

In one instance, we moved[i] successfully, the blood containing spirochetes from the heart to test-tube 1; then, on the second day after, the spirochetes from test-tube 1 to test-tube 2 (containing normal rat's heart's blood shaken); again, on the second day after that, the spirochetes from test-tube 2 to test-tube 3; but not to test-tube 4. In another instance, not even the removal to test-tube 3 was successful. In a third case, we moved the blood containing spirilla from the heart

[i] We use the word "moved" in preference to "transferred" in order to avoid the connotation of growth.

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to a test-tube containing a slope of sheep-serum glucose agar, then, on the eighth day after that, the organisms to test-tube 2, but as we had a contamination we had to stop short. Finally, the removal from potato, test-tube 1, to potato, test-tube 2, but not to potato, test-tube 3, was successful.

Working also with the New York strain, Norris and his collaborators[8] believed they had cultures of the first and second generation, outside the body of the animal. Novy and Knapp[9] report a lack of success on their part outside of the body of the animal but growth of the parasites within capsules in the peritoneal cavity of white rats.[10]

2. Incubator temperature seems to be unfavorable to long life of the organism when outside the body of the host [k].

3. The interpretation of the well-known tangles and intertwinings of the organisms varies with different authors.

In smears of material that had been in vitro, the spirillum often appeared more slender.[l] These slender forms suggested the stage of Spirochaeta pallida interpreted as pre-microgametic by Krzysztalowicz and Siedlecki.[6] Here the organism was found in tangled groups as well as singly. Here also one often saw two (or perhaps more) spirochetes interwoven. The tangled masses might be explained as the result of agglutination, especially as the organisms composing them and surrounding them were particularly long, except for the fact that (in the case of 38 sheep-serum glucose agar) no large groups were seen until some days had elapsed.

According to Novy and Knapp[9] the presence of tangles as observed by Koch (in insect and egg) indicates an agglutinated condition and not multiplication. On the other hand, Levaditi is apparently of a different opinion, as can be seen from the following quotation: "Dass es sich hier nicht (chicken spirochaeta) um eine Agglutination des Spirochäts handelt hat Levaditi durch mikroskopische Beobachtung des Blutes bei 38° festgestellt, wobei er die Haufen in 4-35 Minuten sich

[k] According to L. A. and R. S. Williams (7) room temperature is also the best for the continued existence of Spirochaete Duttoni in vitro.

[l] In "cultures" of Spirochaeta Duttoni made by L. A. and R. S. Williams (7), "the spirochaetes occasionally appeared to be thinner than normal."

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wieder in einzelne freibewegliche Spirochäten auflösen sah." (Quoted from Wladimiroff.)

Koch suggests in the "Berliner klinische Wochenschrift," February, 1906, that chemiotaxis may account for the clumps and recalls the fact that similar plaited masses are to be seen in the flagella of bacteria.

It is not unlikely that the tangles and intertwinings are due to the concentration or coagulation of the blood on standing, or the intertwining to fusion or conjugation. One of the intertwined spirochetes is always coarser than the other (or others), though none is as plump as the "bands" mentioned in paragraph 2 of the next section.

It is unlikely that a longitudinal split should account for these intertwinings; for longitudinal fission would probably result in two organisms, lying side by side and that for more than a small part of their length. The spirilla, in all probability, increase not by longitudinal but by transverse division as is indicated by transverse breaks and faintly stained attenuated areas.

On the Slide.

1. Instead of the typical spiral, one not infrequently sees whiplike organisms. Are these whips and individuals with sweeping waves due to the method of fixation?

2. One also sees certain straightened and flattened bands recalling the involution forms of the bacteria and suggesting, because of their shape, the so-called macrogametes of Spirochaeta pallida as described by Krzysztalowicz and Siedlecki[6]. In some of these thick forms there was an unstained cleft which might be interpreted as the beginning of longitudinal division. The "band-like" form as a whole may stain quite intensely, but usually it is pale. Are these "bands" crushed organisms?

3. The spirillum is straight or curved, or more seldom U-shaped or about ring-shaped, or still less frequently tangled or knotted. We do not agree therefore with Novy and Knapp,[9] who declare that the tendency to figure 8 forms or even perfect circles does not (as in Sp. Duttoni and relapsing fever of Bombay) seem to exist in the New York Spirochaeta Obermeieri. In the hanging drop of the unidenti-

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fied slender spirillum (mentioned below—from the fæces of a dog) the organism was seen to take on tangled shapes.

4. The New York spirochaeta is almost invariably gradually drawn to a point at each of the ends. These two faint terminations resemble the pale attenuated median area mentioned below and do not suggest organoid cilia or flagella, but rather prolongations of the periplast of the organism.

On some few spirilla indications of a flagellum like that described by Novy and Knapp[m] were noted. No flagellum-stain was tried[n].

5. Generally on the slide the spirochete touches a red blood cell or two, more rarely a white blood cell or a blood plate, broadside or with one or the other or both ends. Sometimes it terminates bluntly against a red blood cell; is it then dipping into the cell? But perhaps all these connections come about in making the film, for we have never seen any such in the hanging drop.

Norris and his fellow-workers[8] noted, when immune and spirochetal blood combined were watched in vitro, a marked tendency of the organisms to adhere to the red blood corpuscles.

6. The parasite is often more or less beaded, and then looks as if irregularly stained, as bacteria frequently are. The beading may of course, also, be either an artefact or the result of degeneration[n].

7. A grain-like, deeply stained body was seen in one spirillum, which since it occurred in a smear of normal spirochetes may not have been an artefact, but perhaps the result of degenerative processes.

8. The significance of the transverse breaks is a mooted question. The organism is usually 1½ times the length of a red blood cell, or 2½ times the length of a red blood corpuscle, with a transverse break at about the middle. That we have not here two organisms lying end to end is indicated by the flat surfaces which bound the transverse break. Indeed these long "broken" forms of the parasite predominate

m See E. Zettnow's demonstration in the case of Sp. Duttoni, of flagella like those of bacteria, recorded in *Deut. med. Woch.*, xxxvi, 10, March 8, 1906.

n For a note on the frequent occurrence of such granulations in spirochaete-like organisms see Dutton, Todd, and Tobey, 7.

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in the early stages of the infection and therefore probably before agglutination could be said to bring organisms together. Two organisms lying end to end are not infrequently seen.

In addition to the transverse breaks, one sees similarly located, lightly-stained, attenuated areas. Such a pale, thin zone resembles the faint tips, the two ends of the spirochetes which fade away to a point.

These forms which are pale and thin or broken at the middle of their length might be interpreted as the final stages in a longitudinal division, but definite corresponding early phases have not been observed, namely, the Y-shaped and U-shaped individuals with the attenuated area at the bend of the U.

Novy and Knapp[9] state that several division zones like those of the Bombay organism and like those present in Sp. Duttoni are not to be found in the New York Sp. Obermeieri. On the other hand, we have seen as many as four faint or unstained spots (breaks or attenuated portions) in the course of a single individual, sometimes cutting off from the rest of the spirillum only two, or even only one wave (hinting at vibrio-form or microgametes). These "single" (?) individuals are considered by some a string of individuals.

The modes of reproduction more clearly suggested by these appearances are transverse fission and fragmentation. In support of the view that the mode of reproduction is not longitudinal, but transverse, is the fact that even in the early stages of the infection, not short, thick forms, but long ones predominate.

In the Hanging Drop.

1. Ultimately it is in the hanging drop where the process of multiplication must be studied and there we have not yet seen any division.

Novy and Knapp[9] have often actually seen transverse division in the hanging drop, and Norris, Pappenheimer and Flournoy[8] believe they have seen it once; but all these workers point out the fact that these observations are capable of other interpretations.

2. The differences in the description of the motility of the Spirocheta Obermeieri are probably due to differences of the conditions under which the parasites are watched.

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In the mucus of the fæces of a normal dog were found two kinds of spirochetes, namely, a slender and a thick one[o]. The slender one moved like a snake, its curves were seen to change; in the smears there were far less and broader curves than in the drop. The thick one moved by means of beating its way through the water and apparently by means of a corkscrew motion, its curves were fixed; in the smears there were as many curves as in the drop. The New York Sp. Obermeieri is more like this latter organism than like the former; though it is flexible, its coils are permanent. We have never seen it when it was moving as quickly as either of them. We have seen it swing one end[p] and move from place to place seemingly by means of a corkscrew motion. All these three organisms move with either end forward. The Spirochaeta Obermeieri New York travels in either direction, with the characteristic pauses, gradually or suddenly out of the microscopic field. The corkscrew motions and undulations are more rapid than the progression; indeed the organism often stands still, fastened perhaps to the cover glass, and meanwhile bends slowly and usually undulates rapidly.

There pass over the Spirochaete Obermeieri undulations which persist in preparations longer than any other of its motions and which may be due to an undulating membrane. Perhaps, on the other hand, this pennant-like waving is a mere appearance and not a reality, for the rotations of a spiral about a long axis would simulate a wave motion in one plane as Norris and his co-workers[8] have pointed out. Perhaps the spiral of Spirochaete Obermeieri is rigid except for the lateral swayings. It is impossible to tell which of these phenomena are passive, which locomotor.

o These were found by Mr. Thomas Deaken, laboratory assistant.

p "The swaying lateral motion from side to side is seen only in the long forms, which consist of two or more cells. This is also a secondary condition to the real motion, and although it imparts to the long spirochete the so-called flexible character, the latter feature is hardly of sufficient importance to justify its employment as the basis of a generic difference among the spiral organisms. The long form of the Spirillum rubrum or of the cholera vibrio, as is well known, will show similar lateral swayings" (Novy and Knapp[9]).

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Conclusions.

1. The New York Spirochaeta Obermeieri cannot yet, as has been attempted, be separated from the African spirochete, upon the following grounds: (1) the length of its stay in the peripheral blood of the rat, (2) the number of relapses in the rat, (3) the lack of figure 8 and circular forms, (4) the absence of several transverse breaks; for the length of stay in the peripheral blood probably varies with the method of passage relapses are an uncertain quantity since it is perhaps not positively established that they occur at all figure 8 forms and circles and finally several division zones exist in the New York spirillum as well as in Sp. Duttoni and in the spirillum of Bombay.

2. As far as our work is concerned the parasite merely holds its own in vitro; we cannot say that we had a culture.

3. It is not unlikely that the tangles and intertwinings, seen during attempts at cultivation on artificial media, are due to the concentration or coagulation of the blood on standing, or the intertwinings to fusion or conjugation.

4. The Spirochaete Obermeieri probably increases by transverse fission and fragmentation.

5. We have seen no evidence of sporulation (no spore stain was used) or of a cycle of development, unless the particularly slender forms, short forms, "bands," and intertwinings be considered such evidence. The only host studied was the rat.

6. The variations in the description of the motility are in all likelihood due to differences in the conditions under which the parasites are watched. As observed by us, its motility is almost precisely like that described by Hoffmann,[5] for Spirochaeta pallida.

7. Perhaps the undulations that pass over the organism are merely an appearance and the spiral is in truth rigid except for the lateral swayings.

8. The indication of an undulating membrane in the hanging drop is the only sign of a definite structure which we have seen, except a deeply stained grain (mentioned above). The absence of a complicated structure, the apparent multiplication by transverse division and fragmentation, the rapidity of multiplication, the length of viability



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outside of the body, and the persistence of the spiral form in death, point to a bacterium; whereas the flexibility of the parasite, the indication of an undulating membrane, the inability to cultivate the organism on artificial media, and the death at incubator temperature suggest that the New York Spirochaeta Obermeieri may be a protozoan [q].

According to Schaudinn, Spirochaeta pallida is not a spirochete and not a spirillum but a treponema. It is not a spirochete because of the permanency of its coils, because of its terminal cilium, and because it has not more or less blunted ends. It is not a spirillum because its spirals are flexible, because it has a single cilium instead of a terminal tuft, because it apparently divides longitudinally. The New York Spirillum Obermeieri is certainly flexible and has permanent coils; if against our better judgment we grant in addition that each of its two ends represents a cilium and that the parasite divides longitudinally, then the New York Spirochaeta Obermeieri must be classed with Spirochaeta pallida as a Treponema.[r]

The three tables which follow show the number of examinations made in the case of each rat, and the number of days on which spirochetes were found in the blood of the tail of these rats.

For inoculation, blood was drawn from the infected rat's tail into a syringe containing 10 per cent. sodium citrate solution.

q The tranverse mode of division also occurs among the protozoa; indeed no one of the facts mentioned is in itself a sufficient basis for classification.

r Hoffmann believes that there are now no grounds for separating pallida entirely from the other spirochetes and giving it the specific name of Treponema, since other spirochetes, for instance balantidis, too, have a terminal filament and permanent coils.

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TABLE I.

Of Rats Injected with Fresh Blood.

Rats.	The Inoculations into These Rats Were Made from the Following Rats.	Dates of Inoculation.	Dates on Which the Peripheral Blood Was Examined.	Dates on Which the Spirochetes Were Found.
5	Bellevue	November 28	29, 1, 2, 3	2.
4	5	December 2	From December 3 to January 23 at least four times a week	December 7 and 8 and not again thereafter.
6	4	December 7	8, 9, 10, 11	10.
7	4	December 7	8, 9, 10, 11, 13	10 and 11.
8	4	December 9	11, 12, 13, 14, 15	0*
12	11	December 15	16, 18, 19, 20, 21	0*
13	10	December 15	18	0*
18	11	December 19	21, 22, 23	22, 23.
19	11	December 19	21, 22, 23, 24, 25	23 and 24.
20	18	December 22	24, 25, 26, 27, 28	26 and 27.
21	18	December 22	24, 25, 26, 27, 28, 29, 30, 31	27, 28, 29, 30, 31.
22	19	December 23	25, 26, 27, 28, 29	26, 27, 28.
23	19	December 24	26, 27, 28, 29, 30	28 and 29.
24	20	December 26	28, 29, 30, 31	29 and 30.
25	20	December 28	30, 31, 1, 2, 3, 5	0*
26	25	December 29	31, 1, 2, 3, 4, 5, 6, 8, 9†, 10, 11, 12, 15, 16, 17, 18†. Dead on 19th.	3, 4, 6, 8, 10, 11, 12, 15, 16, 17, 18.
27	25	December 30	1, 2, 3, 4, 5	3 and 4.
28	26	January 3	5, 6, 8, 9	8.
29	26	January 4	6, 8, 9, 10, 11	8, 9, 10.
30	26	January 6	8, 9, 10, 11, 12	11.
31	28	January 8	9	0. Killed on January 9.
32	28	January 8	10, 11, 12	12. Killed on January 12.
33	28	January 8	10, 11, 12, 13, 15, 16	0. ‡
34	29	January 10	12, 13, 15, 16, 17, 18	15, 16, 17. Killed on January 18.
35	32	January 12	15, 17, 18, 19	17, 18.
37	34	January 15	18, 19, 20, 22, 23	19 and 20.
38	35	January 17	19, 20, 22	22. Killed on January 22.
39	37	January 19	22, 23, 24	0. ‡
40	36	January 20	22, 23, 24, 25	23 and 24.
41	38	January 22	24, 25	25. Killed on January 25.
42	40	January 23	25, 26, 27, 29, 30	26, 27, 29.
43	41	January 25	26, 27, 29, 30	29.

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Rats.	The Inoculations into These Rats Were Made from the Following Rats.	Dates of Inoculation.	Dates on Which the Peripheral Blood Was Examined.	Dates on Which the Spirochetes Were Found.
44	42	January 27	29, 30, 31, 1	29, 30, 31.
45	42	January 29	31, 1, 2, 3, 5, 6	3, 5.
46	44	January 31	11, 2, 3, 5, 6	3, 5. Dead on February 15.
47	46	February 3	5, 6, 7, 8, 9, 10	0. ‖
48	46	February 3	6, 7, 8	7, 8. Killed on February 8.
49	48	February 7	9, 10, 13, 15, 16	10, 13.
50	48	February 8	10, 13, 15, 16	13.
51	49	February 10	13, 15, 16	0. ‡
53	50	February 13	15, 16, 17,	16, 17. Killed on February 17.
54	53	February 16	17, 19, 20	20.
55	53	February 17	19, 20	19, 20.
56	53	February 17	19, 20, 25	0. †
57	55	February 19	20, 23	23. Killed on February 23

*Rats 8 and 25 were inoculated with blood after the disappearance of spirochetes from that blood; and rats 12 and 13 were inoculated with blood before the appearance of spirochetes in that blood.

† In the case of rat 26, the smear of the ninth was poor, after that day the smears were made not from the tail but from the ear. The smear of the eighteenth was poor.

‡ Rat 33 was not examined on the 14th; rat 39, not on the 21st; rat 51, not on the 12th and 14th; rat 56 was not examined on the 21st, 22d, 23d, 24th.

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TABLE II.

Of Rats Injected with Blood One Day Old.

Rats.	The Inoculations into These Rats Were Made from the Following Rats.	Dates of Inoculation.	Dates on Which the Peripheral Blood Was Examined.	Dates on Which the Spirochetes Were Found.
9	6	December 11	12, 13, 14, 15	0*
10	7	December 11	12, 13, 14, 15, 16	0*
11	7	December 12	13, 14, 15, 16, 18, 19, 20	18, 19.
14	10	December 16	18	0*
15	11	December 16	18, 19, 20, 21	0*
36	32	January 13	15, 16, 17, 18, 19, 20, 22	19, 20.
52	49	February 11	13, 15, 16, 17	0*
58	54	February 21		Dead February 23.
59	54	February 21	23, 25, 27, 28, 1	27, 28.
60	57	February 24		Dead February 24.
61	57	February 24	27, 28, 1, 2, 3, 4	0*
62	59	March 1	2, 3, 4, 5, 6	6. Killed March 6.

*Rat 9 was not examined after the 15th; and rat 10, not after the 16th. Rats 14 and 15 were inoculated with blood before the appearance of spirochetes in that blood. Rat 52 was not examined on the 14th. Rats 58 and 60 were young, but so too was rat 57. Rat 61 was very large.

TABLE III.

Of Rats Injected with Blood More than One Day Old.

Rats.	The Inoculations into These Rats Were Made from the Following Rats.	Dates of Inoculation.	Dates on Which the Peripheral Blood Was Examined.	Dates on Which the Spirochetes Were Found.
16	3+4+6+7	December 18	20, 21, 22, 23	0.
17	3+4+6+7	December 18	20, 21, 22, 23	0.
63	59	March 3	5, 6, 7, 8, 9, 10, 12, 13, 14, 15	0.
64	62	March 10	12, 13, 14, 15, 16, 17	0.

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TABLE IV.

Of Rats on which Autopsies Were Made.

Rats.	Autopsy Made on	Peripheral Blood: Spirochetes Present (+) or Absent (_).	Heart: Spirochetes Present (+) or Absent (_).	
26*	January 19	..	+	No spirochetes in smears of the spleen, kidney, suprarenal body, lung or liver.
31	January 9	_	_	No spirochetes in smears of the spleen, kidney, suprarenal body, lung or liver.
32	January 12	+	+	No spirochetes in smears of the spleen, kidney, suprarenal body, lung or liver.
34	January 18	_	_	No spirochetes in smears of the spleen, kidney, suprarenal body, lung or liver.
38	January 22	+	+	No smears made of any of the organs except the heart.
41	January 25	+	+	No smears made of any of the organs except the heart.
46	February 15	..	_	No smears made except of the heart. Rat 46 died after not having been examined since the 6th.
53	February 17	+	+	No spirochetes in smears of the spleen. No smears made of any of the organs except of the heart and spleen.
57	February 23	+	+	No smears made of any of the organs except the heart.
58*	February 23	not examined	_	No spirochetes in smears of the spleen. No smears made of the organs except of the heart and spleen.
62	March 6	+	—!	No spirochetes in smears of the spleen. No smears made of any of the organs except of the heart and spleen.

* Rat 58 was a young rat inoculated on February 22 and found dead on February 23. In the case of rat 26 the smear of the heart's blood was poor. The blood was coagulated.

In concluding, I desire to express my thanks to Dr. William H. Park, Director of the Research Laboratory of the Department of Health, for the opportunity to do this work, and to Dr. Anna W. Williams, Assistant Director, for her helpful suggestions.

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EUGENE W. SCHEFFER, Esq.,

Secretary, Board of Health:

SIR:

The following is a report of the Bureau of Records for the year 1906:

Population.

The population of the Greater City, as furnished by the State Census of the year 1905, was 4,014,304 persons, and the estimated population for the middle of the year 1906 was 4,152,860; the estimates by boroughs, made upon the assumption that the rate of increase which prevailed between the Federal Census of 1900 and the State Census of 1905 still maintains in each borough, gave the following figures:

Manhattan	2,174,335
The Bronx	290,097
Brooklyn	1,404,569
Queens	209,686
Richmond	74,173
Greater City	4,152,860

General Statistics—Births.

There were 111,722 births reported during the year, as against 103,881 reported in 1905, an increase of 7,891, distributed among the boroughs as follows:

Manhattan	2,802
The Bronx	647
Brooklyn	3,566
Queens	695
Richmond	181

The following table gives the number of births and birth rates in the boroughs and City since 1898 to 1906:

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Births Reported and Birth-Rates by Boroughs and City—1898-1906.

Borough.	1898.		1899.		1900.		1901.		1902.		1903.		1904.		1905.		1906.	
	Number of Births.	Rate.	Number of Births.	Rate.	Number of Births.	Rate.	Number of Births.	Rate.	Number of Births.	Rate.	Number of Births.	Rate.	Number of Births.	Rate.	Number of Births.	Rate.	Number of Births.	Rate.
Manhattan	49,835	27.54	48,397	26.44	50,494	27.23	49,990	26.25	52,291	26.74	56,078	27.93	59,196	28.71	60,202	28.43	63,005	29.11
The Bronx.....	3,524	21.07	3,671	19.96	4,122	20.45	4,023	18.79	5,220	22.94	6,053	25.03	6,033	23.48	6,659	24.39	7,306	25.18
Brooklyn	21,395	15.54	21,203	18.73	22,572	19.34	22,182	18.40	23,507	18.91	27,292	21.29	28,859	21.89	30,972	22.73	34,538	24.59
Queens	2,826	20.62	2,943	20.27	3,084	20.07	3,127	19.32	3,198	18.76	3,802	21.18	3,871	20.48	4,355	21.87	5,050	24.08
Richmond.....	1,348	21.14	1,418	21.67	1,449	21.59	1,413	20.71	1,428	20.58	1,530	21.68	1,596	22.25	1,692	23.19	1,873	25.25
City of N. Y..	78,928	24.12	77,632	23.13	81,721	23.71	80,735	22.72	85,644	23.36	94,755	25.06	99,555	25.52	103,880	25.81	111,772	26.91

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The above table shows that there has been a considerable increase in the percentage of reported births compared with the year 1898, when the Charter of the Greater City went into effect. This increase is due to several causes, first the high marriage rate for the preceding two or three years has been followed by an actual increase in the number of births occurring in the City and consequent increase in the number of births reported; second, the necessity of producing a certificate of birth in order to obtain admission into the public schools in certain densely populated sections of the City has indirectly acted as a stimulus upon the parents who have been referred to the physicians and midwives to obtain certificates of birth from them in births occurring in previous years, of which no record was filed at the time of birth; third, the constant endeavors of the Registrar and his assistants to compel compliance with the law.

Marriages.

The marriages reported during the year number 48,355, against 42,675 in 1905, an increase of 5,680, distributed among the boroughs as follows:

Manhattan	3,934
The Bronx	207
Brooklyn	1,184
Queens	328
Richmond	27

The marriage rate was 11.64 marriages, or 23.28 persons married per 1,000 of the population, an extremely high rate; the rate in the Borough of Manhattan reached the high water mark of 29.74 persons married per 1,000 of the population. The great factor in the production of such high rate has undoubtedly been the prosperous condition of the City during the past year.

The following table gives the number of marriages reported and rates per 1,000 in the boroughs and City since 1898:

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Marriages Reported and Marriage Rates by Boroughs and City, 1898-1906.

Borough.	1898.		1899.		1900.		1901.		1902.		1903.		1904.		1905.		1906.	
	Number of Marriages.	Rate.	Number of Marriages.	Rate.	Number of Marriages.	Rate.	Number of Marriages.	Rate.	Number of Marriages.	Rate.	Number of Marriages.	Rate.	Number of Marriages.	Rate.	Number of Marriages.	Rate.	Number of Marriages.	Rate.
Manhattan	20,118	11.12	20,836	11.36	21,979	11.85	22,895	12.02	24,766	12.67	25,911	12.90	26,500	12.85	28,408	13.42	32,342	14.87
The Bronx	651	3.89	904	4.92	948	4.69	1,067	4.80	1,227	5.03	1,354	4.76	1,465	4.97	1,820	6.67	2,027	6.99
Brooklyn	7,129	6.51	7,612	8.48	8,214	7.04	8,303	6.89	9,014	7.25	9,616	7.50	10,019	7.61	10,778	7.91	11,966	8.51
Queens	636	4.64	710	4.89	768	5.00	777	4.80	768	4.51	855	4.76	921	4.87	1,092	5.48	1,420	6.77
Richmond	351	5.50	412	6.30	428	6.38	405	5.93	432	6.23	438	6.21	531	7.40	573	7.86	600	8.09
City of New York	28,885	8.83	30,474	9.07	32,247	9.36	33,447	9.41	36,207	9.88	38,174	10.10	39,436	10.11	42,671	10.60	48,355	11.64

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Still-births.

There were 6,646 still-births reported during the year, with a rate of 1.60 per 1,000 of the population, against 6,352 and a rate of 1.58 in the previous year.

Deaths.

There were 76,203 deaths reported during the year, against 73,714 reported in 1905, an increase of 2,489; the rate for 1906 was 18.35 per 1,000 of the population; that for 1905 was 18.32, an increase of .03 of a point; the quinquennial average for the preceding five years was 18.94, the rate for 1906 being lower by .59 of a point. The following table gives the death rates, by boroughs and City, since 1898, the year of the creation of the Greater City; the rate for 1906 compares favorably with those of the preceding years, being the third lowest.

Boroughs.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.
Manhattan	20.28	19.77	20.97	20.22	18.80	18.43	20.53	18.74	18.32
The Bronx	22.42	20.23	21.58	22.40	21.69	19.70	24.98	20.25	21.64
Brooklyn	19.77	19.13	20.15	19.30	17.97	17.27	18.83	17.57	17.82
Queens	18.69	17.29	17.96	17.30	16.32	14.90	16.04	16.03	17.09
Richmond	20.48	19.45	20.53	19.71	18.48	17.29	20.25	19.04	20.06
City of New York	20.26	19.47	20.57	19.90	18.58	17.95	20.01	18.32	18.35

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In the following table the deaths of residents of each borough, which have occurred in a borough other than the one of which they were residents at time of death, have been distributed among the boroughs according to residence, thus producing a corrected interborough mortality; for instance, in Manhattan Borough there occurred 877 deaths of residents of other boroughs, and 1,790 deaths of residents of Manhattan were reported from the other boroughs, thus adding 913 deaths to Manhattan's total for the year:

Corrected Interborough Mortality.

	Manhattan.	The Bronx.	Brooklyn.	Queens.	Richmond.	Total.
Manhattan		342	425	79	31	877
The Bronx	1,463		11	2	1	1,477
Brooklyn	104	4		56	9	173
Queens	77	11	111		1	200
Richmond	149	4	32	1		186
Total	+1,793	+361	+579	+138	+42	+2,913
	−877	−1,477	−173	−200	−186	−2,913
	+916	−1,116	+406	−62	−144	
Total deaths reported	39,831	6,277	25,024	3,583	1,488	
Corrected total	40,747	5,161	25,430	3,521	1,344	
Corrected death rates	18.74	17.79	18.11	16.79	18.12	

The following table gives the death rates of the former City of New York (present Boroughs of Manhattan and The Bronx) and the former City of Brooklyn (present Borough of Brooklyn) from 1866 to date. Attention is drawn to the striking differences between the death rates of the earlier years and those of the later, in both cities; if we compare the death rate of the old City of New York, in 1866, when the Board of Health was first organized, with those of the past year, the remarkable decrease of over 46.70 will be found; the rate of the City of Brooklyn for 1866, compared with that of the present Borough of Brooklyn, shows a decrease of 35 per cent.:

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General Death Rate Per 1,000, *Old City of New York*, 1866-1906.

Year.	Death Rate.	Year.	Death Rate.	Year.	Death Rate.	Year.	Death Rate.
1866.....	34.92	1877.....	23.66	1887.....	26.32	1897.....	20.03
1867.....	28.65	1878.....	23.68	1888.....	26.39	1898.....	20.46
1868.....	29.25	1879.....	24.13	1889.....	25.32	1899.....	19.81
1869.....	28.09	1880.....	26.41	1890.....	24.87	1900.....	21.03
1870.....	28.81	1881.....	31.04	1891.....	26.31	1901.....	20.45
1871.....	28 22	1882.....	29.61	1892.....	25.95	1902.....	19.11
1872.....	33.70	1883.....	25.80	1893.....	25.30	1903.....	18.57
1873.....	29.63	1884.....	25.82	1894.....	22.76	1904.....	21.02
1874.....	27.87	1885.....	25.55	1895.....	23.18	1905.....	18.91
1875.....	29.40	1886.....	25.99	1896.....	24.81	1906.....	18.71
1876.....	27.11						

General Death Rate Per 1,000, *City and Borough of Brooklyn*, 1866-1906.

Year.	Death Rate.	Year.	Death Rate.	Year.	Death Rate.	Year.	Death Rate.
1866.....	27.51	1877.....	22.02	1887.....	23.33	1897.....	19.40
1867.....	25.09	1878.....	20.79	1888.....	21.23	1898.....	20.01
1868.....	24.69	1879.....	21.03	1889.....	23.63	1899.....	19.10
1869.....	23.32	1880.....	23.27	1890.....	24.53	1900.....	20.10
1870.....	24.02	1881.....	24.79	1891.....	25.62	1901.....	19.30
1871.....	24.82	1882.....	24.81	1892.....	24.23	1902.....	17.97
1872.....	24.76	1883.....	22.03	1893.....	23.74	1903.....	17.27
1873.....	24.52	1884.....	21.90	1894.....	21.95	1904.....	18.83
1874.....	23.66	1885.....	23.10	1895.....	22.67	1905.....	17.57
1875.....	25.78	1886.....	22.70	1896.....	21.79	1906.....	17.82
1876.....	24.69						

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The following table shows the number of deaths from the principal causes in the entire City during the year and compares its mortality with that of 1905, indicating the increases and decreases:

Cause of Death.	1905.	1906.	Increase in 1906.	Decrease in 1906.
Typhoid fever	649	639		10
Malarial fever	53	64	11	
Smallpox	9	6		3
Measles	520	1,145	625	
Scarlet fever	473	491	18	
Whooping cough	408	367		41
Diphtheria and croup	1,544	1,898	354	
Influenza	311	241		70
Dysentery	149	142		7
Pulmonary tuberculosis	8,535	8,955	420	
Other tubercular diseases	1,123	1,239	116	
Cancer, sarcoma	2,875	3,005	130	
Diabetes	589	652	63	
Alcoholism	596	636	40	
Diseases of nervous system	7,501	6,046		1,455
Diseases of circulatory system	6,437	6,951	514	
Bronchitis, acute	1,417	1,319		98
Pneumonia (lobar and broncho)	9,783	10,868	1,085	
Diarrhœal diseases (under two years)	5,877	5,784		93
Diarrhœal diseases (two years and over)	754	721		33
Other diseases of digestive system	3,109	3,158	49	
Bright's disease and acute nephritis	5,944	6,108	164	
Puerperal diseases	815	763		52
Congenital debility and malformations	4,019	4,366	317	
Old age	723	890	167	
Homicides	165	253	88	
Suicides	660	707	47	
Accidents	3,651	3,781	130	
Ill defined causes	1,092	969		123
All other causes	3,933	4,069	136	
Total	73,714	76,203	4,474	1,985
Balance	2,489		2,489	

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Typhoid Fever.

There were ten less deaths reported from this disease than in the previous year; the boroughs showing increases were Manhattan (52 and The Bronx (7), and decreases, Brooklyn (67), Queens (1) and Richmond (1).

The death rate per 100,000 of the population was 15.4 for the past year, against 16.12 for 1905, a decrease of 1.08 point per 100,000. In the old City of New York the number of deaths in 1906 was 369, showing a mortality of over 18 per cent. in 2,014 cases reported, against 310 deaths with a mortality of 14 per cent. in 2,194 cases in 1905; in the Borough of Brooklyn 230 deaths were reported and 1,215 cases, showing a case mortality of 19 per cent., against 297 deaths and 2,884 cases with a mortality of 10 per cent. in 1905, so that, apparently, the disease exhibited a considerable increase in virulence during 1906.

The following tables show the number of deaths and rates per 10,000 in the old City of New York and City and Borough of Brooklyn for a period of 32 years:

Deaths and Death-rates from Typhoid Fever, Old City of New York and City and Borough of Brooklyn, per 10,000, 1874-1906.

Year.	Old City of New York.			Brooklyn.		
	Deaths.	Death Rates.	Decennial Rates.	Deaths.	Death Rates.	Decennial Rates.
1874	305	2.96		81	1.74	
1875	376	3.60		102	2.11	
1876	325	3.02		97	1.94	
1877	343	3.10		82	1.59	
1878	321	2.81	3.44	59	1.11	1.55
1879	268	2.28		59	1.07	
1880	372	3.08		71	1.25	
1881	594	4.77		99	1.69	
1882	516	4.03		93	1.54	
1883	625	4.74	...	92	1.47	
1884	476	3.51		107	1.66	
1885	405	2.90		153	2.30	
1886	433	3.01		123	1.77	

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Year.	Old City of New York.			Brooklyn.		
	Deaths.	Death Rates.	Decennial Rates.	Deaths.	Death Rates.	Decennial Rates.
1887	421	2.85		143	1.95	
1888	364	2.39	2.62	153	2.02	2.00
1889	397	2.53		161	2.06	
1890	352	2.18		182	2.25	
1891	384	2.31		180	2.16	
1892	400	2.34		162	1.89	
1893	381	2.17		179	2.02	
1894	326	1.80		159	1.65	
1895	322	1.72		173	1.74	
1896	297	1.56		163	1.58	
1897	299	1.54		173	1.62	
1898	376	1.90	1.72	270	2.46	2.14
1899	294	1.46		205	1.81	
1900	372	1.81		301	2.57	
1901	412	1.95		272	2.25	
1902	399	1.83		322	2.59	
1903	350	1.56		267	2.08	
1904	309	1.33		303	2.29	
1905	310	1.30		297	2.18	
1906	369	1.50		230	1.64	

Malarial Fevers.

The number of deaths reported from malarial fevers was 64, an increase of eleven over the previous years; this increase was due in a measure to an increased number of typical malarial, brought into the City from the South and Southwest, all deaths reported from this disease having been investigated by the inspectors attached to the Division of Communicable Diseases.

Small-pox.

Six (6) deaths were reported during the year, a decrease of three (3) compared with last year.



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Measles.

Nineteen hundred and six was undoubtedly a measles year; in the Greater City almost 40,000 cases were reported, with 1,145 deaths, against 20,000 cases, with 520 deaths; the increase was distributed equally among the boroughs, and, as usual, was accompanied by the corresponding increase in the deaths from broncho-pneumonia. The effect of an epidemic of measles on the mortality from broncho-pneumonia (two diseases confined chiefly to childhood) is evident upon a glance at the following table, which gives the deaths from these two diseases, by months, for the years 1905 and 1906, in the Greater City:

Month.	Deaths from Measles.		Deaths from Broncho-Pneumonia.	
	1905.	1906.	1905.	1906.
January	32	116	507	536
February	25	162	412	534
March	49	228	474	648
April	52	212	473	605
May	66	165	389	506
June	92	103	303	326
July	63	67	255	228
August	33	25	221	228
September	15	13	177	287
October	13	11	243	332
November	40	16	294	390
December	40	27	378	480
Total	520	1,145	4,126	5,101

The decennial death rate per 10,000 of the population in the old City of New York in 1875-1884 was 3.64; in 1885-1894 it rose to 4.10, and fell, in 1895-1904, to 2.40; in 1905 the rate was 1.31, and in 1906 2.69, more than double that of the previous year, and the highest death rate from his disease since 1896.

Diphtheria and Croup.

One thousand eight hundred and ninety-eight deaths were reported from this disease in 1906, with a rate of per 100,000 of 45.7, against

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1,544 deaths and a rate of 38.4. This increase in all probability is due to the neglect of the use of diphtheria antitoxin during the first day or two of the disease. In the Borough of Manhattan the rate was 33.6, in The Bronx 86.9, in Brooklyn 56.5, in Queens 44.8 and in Richmond 37.7; the case fatality in Manhattan was 9.8 per cent., in The Bronx 20.1 per cent, in Brooklyn 15.2 per cent., in Queens 15 per cent. and in Richmond 12.5 per cent. There is hardly any doubt but that antitoxin is used earlier and oftener by the physicians practicing in Manhattan as compared with those of other boroughs, and these figures in themselves constitute an object lesson that should be impressed upon the minds of the practitioners of medicine in the City.

Pulmonary Tuberculosis.

Eight thousand nine hundred and fifty-five deaths were reported, giving a death rate of 2.16 per 1,000, against 8,535 deaths and a rate of 2.12 for 1905; in the old City of New York the rate for 1906 was 2.39 per 1,000 against 2.38 in 1905 and 1904, so that apparently the decrease in the rate which has been noted for many years has come to a stand-still, and it impresses upon us the necessity of enlarging the present municipal sanatorium at Otisville and instituting additional ones.

Cancer and Sarcoma.

The deaths from these diseases numbered 3,005 in 1906, against 2,875 in 1905, the rate per 1,000,000 being respectively 724 and 714; the tendency towards continued increase in the rate is here shown and reference may be had to the annual reports of 1903 and 1904 for confirmation of the actual as well as apparent increase of cancer mortality.

Diseases of the Nervous System.

There were 6,046 deaths reported under this general heading, against 7,501 in 1905, a decrease of 1,455 deaths, 1,213 of these 1,455 being due to the decrease in the mortality from cerebro-spinal meningitis, which in 1904 appeared in the form of a severe epidemic and continued with increased virulence until July, 1905.



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Circulatory and Urinary Diseases.

The deaths from diseases of these two divisions are considered together in this commentary as both are often named conjointly upon the certificates of death, difficulty often arising as to which should be given the preference and as both have co-relative anatomical and physiological functions.

In 1906 there were 6,951 deaths reported from diseases of the circulatory system and 6,108 from organic disease of the kidneys, a total of 13,059 deaths against a total of 12,381 deaths in 1905, an increase of 678; the rates per 10,000 of the population were 31.4 in 1906 and 30.8 in 1905. The tendency of the death rate from these two combined causes has been gradually upward since the organization of the Board in 1866; the death rate in the decennium 1869-1878 was 17.13 per 10,000, that of 1879-1888, 20.47 and that of 1889-1898, 24.23; the rate in 1906 was 27.34, which, if compared with the rate of the first decennium mentioned, shows an increase of 10.21 points, an increase of 59.6 per cent.; one of the fruitful causes of this tremendous increase is the presence among us since 1889 of influenza, with its direful effects upon all invalids suffering from organic diseases; additional causes are dependent upon the conditions of high pressure under which we have been and are at present living; the rapid wear and tear of feverishly active commercial life and the consequent recourse to over-indulgence in strong drinks and food are undoubtedly prominent factors.

Diseases of the Respiratory Organs.

There were 13,361 deaths from all respiratory diseases reported during the year against 12,371 in 1905, an increase of 990; most of this increase was due to the greater mortality from broncho-pneumonia, which equaled 975 deaths more than in 1905; the mortality from lobar pneumonia was higher by 110 deaths; the reason for the great increase in the deaths among children from broncho-pneumonia was the exceedingly severe epidemic of measles which prevailed during the first six months of 1906; this phase was treated upon previously under the heading of "measles."

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Diarrhoeal Diseases.

There were 6,505 deaths reported from this class of diseases, against 6,631 in 1905, a decrease of 126 deaths; the rate per 1,000 was 1.57 in 1906 and 1.65 in 1905, a decrease of .08 of a point. Though small, this reduction of .08 of a point is due entirely to the efforts put forth by the Department of Health to educate mothers or others who have charge of the feeding and care of infants, such education being accomplished by cards printed in English and many of the foreign languages of those who have made the City their abode, and also by sending visiting nurses to give instruction in the proper means of feeding and caring for the infants in their charge.

Violent Deaths.

Four thousand seven hundred and forty-one deaths were reported under this heading, against 4,476 during 1905; this increase of 265 was distributed as follows: Homicides, 88; suicides, 47, and accidents, 130.

Searches and Transcripts.

During 1906 90,964 searches were made and 39,085 transcripts issued of the records of births, deaths and marriages; the searches increased 2,569 and the transcripts 3,252 over the figures of 1905.

Respectfully submitted,

WM. H. GUILFOY, M. D.,
Registrar of Records.



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REPORT OF BUREAU

For Year Ending

	Borough of	
	Manhattan.	The Bronx.
Number of deaths	39,831	6,277
Death rates	18.32	21.64
* Corrected death rates	18.74	17.79

* These corrected rates are the result of distributing among the boroughs the deaths of were residents at the time of death.

Borough.	Estimated Population.	Certificates Received and Tabulated.			
		Marriages.	Births.	Deaths.	Still-births.
Manhattan	2,194,335	32,342	63,005	39,831	3,752
The Bronx	290,097	2,027	7,306	6,277	430
Brooklyn	1,404,569	11,966	34,538	25,024	2,071
Queens	209,686	1,420	5,050	3,583	300
Richmond	74,173	600	1,873	1,488	93
City of New York	4,152,860	48,355	111,772	76,203	6,646

	Borough of	
	Manhattan.	The Bronx.
Number of deaths in institutions	14,866	2,639
Number of deaths in tenements	21,745	2,079
Number of deaths in dwellings	1,713	1,352
Number of deaths in hotels and boarding-houses	527	27
Number of deaths in streets, rivers, etc	980	180

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OF RECORDS,

December 31, 1906.

Borough of			City of New York.
Brooklyn.	Queens.	Richmond.	
25,024	3,583	1,488	76,203
17.81	17.09	20.06	18.35
18.11	16.79	18.12	

residents of each borough which had occurred in a borough other than the one of which they

Rate per 1,000.				Transit Permits Issued.	Coroners' Cases.	Searches Made.	Transcripts Issued.
Marriages.	Births.	Deaths.	Still-births.				
14.87	28.98	18.32	1.73	1,055	5,618	56,382	22,617
6.99	25.19	21.64	1.48	39	871	6,168	2,929
8.52	24.59	17.81	1.47	475	3,348	25,479	12,021
6.77	24.08	17.09	1.43	497	673	2,166	1,130
8.09	25.25	20.06	1.25		257	769	388
11.64	26.92	18.35	1.60	2,066	10,767	90,964	39,085

Borough of			City of New York.
Brooklyn.	Queens.	Richmond.	
5,811	539	589	24,444
12,021	896	103	36,844
6,543	1,915	700	12,223
111	55	17	737
538	178	79	1,955

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Particulars Regarding Births, Deaths, Marriages and Still-births Reported during the Year ending December 31, 1906.

CITY OF NEW YORK.

	*Marriages.		*Births.		Deaths.		*Still-births.	
	M.	F.	M.	F.	M.	F.	M.	F.
White	46,911	46,930	56,386	53,581	40,916	33,150	3,711	2,680
Colored	1,428	1,424	937	858	1,048	999	123	89
Chinese	16	1	6	4	87	3		
Native parents			14,939	14,327	8,168	7,153	1,096	797
Foreign parents			35,070	33,244	27,031	22,163	2,134	1,514
Parentage of mixed nativities			6,882	6,455	3,910	3,214	388	284
Parentage unknown or not stated			435	420	2,942	1,622	217	178
Single	44,914	44,475			23,841	16,938		
Married					13,418	9,627		
Widowed	3,087	3,278			4,212	7,449		
Divorced	354	602			33	36		
Not stated					548	101		
Total	48,355		111,772		76,203		‖6,646	

Month of utero-gestation	1.	
	2.	14
	3.	112
	4.	268
	5.	519
	6.	804
	7.	1,031
	8.	861
	9.	2,755
	10.	262
	Not stated	20

* The returns of Births and Marriages and Still-births are incomplete. ‖ Sex undetermined, 43.



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Particulars Regarding Births, Deaths, Marriages and Still-births Reported during the Year ending December 31, 1906.

BOROUGH OF MANHATTAN.

	Marriages.		Births.		Deaths.		Still-births.	
	M.	F.	M.	F.	M.	F.	M.	F.
White	31,318	31,341	31,629	30,183	21,457	17,048	2,057	1,519
Colored	1,010	1,000	629	554	650	594	88	61
Chinese	14	1	6	4	80	2		
Native parents			6,015	5,855	3,599	3,078	441	332
Foreign parents			22,782	21,549	15,002	12,101	1,342	1,007
Parentage of mixed nativities			3,099	3,001	1,774	1,392	211	142
Parentage unknown or not stated			365	339	1,811	1,074	152	103
Single	30,566	29,998			12,657	10,031		
Married					6,989	4,839		
Widowed	1,542	1,912			2,063	2,779		
Divorced	234	432			20	22		
Not stated					358	73		
Total	32,342		63,005		39,831		‡3,752	
Month of utero-gestation .. 1								
2							12	
3							86	
4							175	
5							318	
6							478	
7							570	
8							462	
9							1,449	
10							199	
Not stated							3	

‡ Sex undetermined, 27.

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Particulars Regarding Births, Deaths, Marriages and Still-births Reported during the Year ending December 31, 1906.

BOROUGH OF THE BRONX.

	Marriages.		Births.		Deaths.		Still-births.	
	M.	F.	M.	F.	M.	F.	M.	F.
White	2,000	2,001	3,736	3,467	3,373	2,700	248	169
Colored	26	26	44	59	93	111	5	4
Chinese	1							
Native parents			1,416	1,316	654	619	98	58
Foreign parents			1,540	1,426	2,262	1,771	107	66
Parentage of mixed nativities			815	771	337	294	39	33
Parentage unknown or not stated			9	13	213	127	9	16
Single	1,789	1,839			1,872	1,295		
Married					1,153	867		
Widowed	217	170			422	643		
Divorced	21	18			1			
Not stated					18	6		
Total	2,027		7,306		6,277		†430	

		Still-births.
Month of utero-gestation	1	
	2	1
	3	6
	4	13
	5	29
	6	42
	7	79
	8	65
	9	131
	10	57
	Not stated	7

† Sex undetermined, 4.

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Particulars Regarding Births, Deaths, Marriages and Still-births Reported during the Year ending December 31, 1906.

BOROUGH OF BROOKLYN.

	Marriages.		Births.		Deaths.		Still-births.	
	M.	F.	M.	F.	M.	F.	M.	F.
White	11,643	11,640	17,535	16,599	13,263	11,253	1,165	853
Colored	323	326	214	190	254	247	24	18
Chinese					6	1		
Native parents			5,963	5,672	3,183	2,858	450	351
Foreign parents			9,391	8,968	8,154	7,012	584	375
Parentage of mixed nativities			2,340	2,097	1,471	1,262	106	91
Parentage unknown or not stated			55	52	716	368	49	54
Single	10,758	10,832			7,606	5,552		
Married					4,352	3,263		
Widowed	1,120	993			1,427	2,651		
Divorced	88	141			10	13		
Not stated					129	21		
Total	11,966		34,538		25,024		§2,071	

Month of utero-gestation	1	
	2	1
	3	15
	4	72
	5	152
	6	233
	7	311
	8	277
	9	999
	10	5
	Not stated	6

§ Sex undetermined, 11.

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Particulars Regarding Births, Deaths, Marriages and Still-births Reported during the Year ending December 31, 1906.

BOROUGH OF QUEENS.

	Marriages.		Births.		Deaths.		Still-births.	
	M.	F.	M.	F.	M.	F.	M.	F.
White	1,372	1,369	2,520	2,453	1,962	1,540	184	106
Colored	48	51	38	39	39	42	4	5
Chinese								
Native parents			1,124	1,087	488	405	82	41
Foreign parents			972	940	1,156	939	82	53
Parentage of mixed nativities			458	449	253	208	22	14
Parentage unknown or not stated			4	16	104	30	2	3
Single	1,267	1,267			1,120	759		
Married					662	479		
Widowed	144	143			200	342		
Divorced	9	10			1	1		
Not stated					18	1		
Total	1,420		5,050		3,583		◆300	
Month of utero-gestation .. 1								
2								
3							3	
4							5	
5							12	
6							41	
7							53	
8							38	
9							143	
10							1	
Not stated							4	

◆ Sex undetermined, 1.

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Particulars Regarding Births, Deaths, Marriages and Still-births Reported during the Year ending December 31, 1906.

BOROUGH OF RICHMOND.

	Marriages.		Births.		Deaths.		Still-births.	
	M.	F.	M.	F.	M.	F.	M.	F.
White	578	579	966	879	861	609	57	33
Colored	21	21	12	16	12	5	2	1
Chinese	1				1			
Native parents			421	397	224	193	25	15
Foreign parents			385	361	457	340	19	13
Parentage of mixed nativities			170	137	75	58	10	4
Parentage unknown or not stated			2		98	23	5	2
Single	533	539			486	301		
Married					262	179		
Widowed	64	60			100	134		
Divorced	2	1			1			
Not stated					25			
Total	600		1,873		1,488		✣ 93	

		Still-births.
Month of utero-gestation	1	
	2	
	3	2
	4	3
	5	8
	6	10
	7	18
	8	19
	9	33
	10	
	Not stated	

✣ Sex undetermined.

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Report of Births, City of New York,

Month.	Total.	White.		Colored.		Chinese.		Native Parents.	
		M.	F.	M.	F.	M.	F.	M.	F.
January	9,885	5,024	4,718	79	62	1	1	1,333	1,222
February	8,538	4,359	4,007	87	83	1	1	1,137	1,111
March	9,465	4,748	4,574	76	65	1	1	1,256	1,244
April	8,400	4,260	4,006	59	74	1	..	1,190	1,120
May	8,637	4,336	4,163	79	59	..	..	1,169	1,162
June	8,655	4,320	4,201	74	60	..	..	1,147	1,158
July	9,747	4,832	4,740	85	88	1	1	1,431	1,373
August	10,267	5,211	4,880	90	85	1	..	1,352	1,258
September	9,273	4,654	4,478	73	68	..	..	1,177	1,132
October	10,140	5,137	4,843	87	71	1	1	1,374	1,236
November	9,169	4,644	4,378	72	74	..	1	1,154	1,150
December	9,596	4,859	4,591	75	70	1	..	1,224	1,155
Total	111,772	56,384	53,579	936	859	8	6	14,944	14,321

BOROUGH OF

Report of Births for the Year

	Total.	White.		Colored.		Chinese.		Native Parents.	
		M.	F.	M.	F.	M.	F.	M.	F.
January	5,641	2,856	2,682	57	44	1	1	541	515
February	4,919	2,513	2,290	52	62	1	1	467	457
March	5,453	2,725	2,629	52	45	1	1	547	543
April	4,904	2,486	2,334	38	45	1		533	491
May	4,848	2,374	2,379	58	37			461	474
June	4,855	2,416	2,352	49	38			464	478
July	5,320	2,616	2,592	54	56	1	1	550	516
August	5,775	2,925	2,737	59	53	1		552	522
September	5,181	2,613	2,489	46	33			442	448
October	5,609	2,785	2,710	63	49	1	1	533	461
November	5,213	2,662	2,455	48	47		1	455	473
December	5,287	2,656	2,532	52	46	1		475	472
Total	63,005	31,627	30,181	628	555	8	6	6,020	5,850



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for the Year Ending December 31, 1906.

Foreign Parents.		Mixed Parentage.		Unknown Parentage.		Foreign Mothers of Mixed Parentage.	Attended by Physician	Attended by Midwives	Apparently Illegitimate.	Twins.	Triplets.
M.	F.	M.	F.	M.	F.						
3,096	2,961	630	562	45	36	597	5,673	4,212	150	78	..
2,716	2,480	553	466	41	34	552	4,848	3,690	145	77	..
2,939	2,786	599	572	32	37	621	5,123	4,342	140	62	..
2,586	2,435	514	481	30	44	543	4,830	3,570	131	60	..
2,655	2,499	543	522	48	39	547	5,031	3,606	159	73	1
2,683	2,584	531	496	33	23	568	4,951	3,704	97	79	..
2,854	2,855	603	568	30	33	602	5,779	3,968	151	75	..
3,317	3,084	596	594	37	29	647	6,138	4,129	136	92	..
2,943	2,856	579	519	28	39	561	5,193	4,080	107	61	..
3,212	3,084	619	557	20	38	614	5,687	4,453	120	84	..
2,996	2,730	520	532	46	41	577	5,044	4,125	129	61	..
3,073	2,889	596	590	42	27	578	5,364	4,232	122	73	..
35,070	33,243	6,883	6,459	432	420	7,007	63,661	48,111	1,587	875	1

MANHATTAN.

Ending December 31, 1906.

Foreign Parents.		Mixed Parentage.		Unknown Parentage.		Foreign Mothers of Mixed Parentage.	Attended by Physician	Attended by Midwives	Apparently Illegitimate.	Twins.	Triplets.
M.	F.	M.	F.	M.	F.						
2,019	1,928	316	254	38	30	230	3,126	2,515	116	33	..
1,803	1,656	263	214	33	26	208	2,778	2,141	112	36	..
1,919	1,842	286	266	26	24	222	2,902	2,551	110	25	..
1,728	1,629	237	226	27	33	239	2,765	2,139	111	25	..
1,695	1,663	233	243	43	36	203	2,803	2,045	132	32	1
1,746	1,652	230	238	25	22	215	2,689	2,166	75	32	..
1,845	1,855	251	249	25	29	222	3,031	2,289	115	30	..
2,123	1,960	275	286	35	22	242	3,565	2,210	109	40	..
1,938	1,816	255	226	24	32	184	2,808	2,373	89	27	..
2,032	1,998	271	272	13	29	221	2,968	2,641	88	41	..
1,980	1,743	237	252	38	35	233	2,833	2,380	110	18	..
1,953	1,806	246	279	35	21	186	2,846	2,441	93	23	..
22,781	21,548	3,100	3,005	362	339	2,605	35,114	27,891	1,260	362	1

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BOROUGH OF

Report of Births for the Year

	Total.	White.		Colored.		Chinese.		Native. Parents.	
		M.	F.	M.	F.	M.	F.	M.	F.
January	586	294	285	2	5			113	108
February	483	245	231	4	3			90	90
March	549	276	261	5	7			94	112
April	567	285	275	2	5			109	111
May	521	291	220	5	5			108	79
June	575	280	288	5	2			110	105
July	682	344	324	6	8			159	132
August	645	336	303	2	4			128	120
September	698	330	352	7	9			139	131
October	709	384	322	1	2			137	112
November	628	325	299	2	2			114	106
December	663	346	307	3	7			115	109
Total	7,306	3,736	3,467	44	59			1,416	1,315

BOROUGH OF

Report of Births for the Year

	Total.	White.		Colored.		Chinese.		Native Parents.	
		M.	F.	M.	F.	M.	F.	M.	F.
January	3,056	1,568	1,462	15	11			540	468
February	2,593	1,340	1,219	20	14			453	438
March	2,938	1,475	1,434	17	12			505	488
April	2,428	1,238	1,154	17	19			429	409
May	2,740	1,401	1,311	15	13			470	494
June	2,629	1,336	1,263	16	14			436	430
July	3,162	1,565	1,557	23	17			589	613
August	3,186	1,618	1,524	25	19			532	464
September	2,850	1,434	1,379	15	22			469	453
October	3,200	1,647	1,519	19	15			569	528
November	2,770	1,387	1,343	21	19			475	450
December	2,986	1,526	1,434	11	15			496	437
Total	34,538	17,535	16,599	214	190			5,963	5,672

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THE BRONX.

Ending December 31, 1906.

Foreign Parents.		Mixed Parentage.		Unknown Parentage.		Foreign Mothers of Mixed Parentage.	Attended by Physician	Attended by Midwives	Apparently Illegitimate.	Twins.	Triplets.
M.	F.	M.	F.	M.	F.						
128	118	55	64			56	397	189	6	6	..
102	85	57	58		1	62	320	163	3	6	..
128	98	59	55	1	2	56	387	162	5	5	..
104	103	74	65		1	67	422	145	1	4	..
119	99	69	46		1	57	356	165	7	8	..
94	137	78	48	3		74	392	183	8	9	..
118	125	71	73	2	2	89	508	174	7	3	..
144	129	66	57		1	68	450	195	8	4	..
130	142	68	87		1	85	490	208	3	8	..
171	136	77	76			68	494	215	1	5	..
149	131	62	62	2	2	78	398	230	4	7	..
154	123	79	80	1	2	92	455	208	7	10	..
1,541	1,426	815	771	9	13	851	5,069	2,237	60	75	..

BROOKLYN.

Ending December 31, 1906.

Foreign Parents.		Mixed Parentage.		Unknown Parentage.		Foreign Mothers of Mixed Parentage.	Attended by Physician	Attended by Midwives	Apparently Illegitimate.	Twins.	Triplets.
M.	F.	M.	F.	M.	F.						
825	808	211	192	7	5	275	1,811	1,245	23	29	..
716	643	183	147	8	5	240	1,438	1,155	26	30	..
782	752	201	197	4	9	296	1,547	1,391	22	28	..
670	613	153	145	3	6	205	1,344	1,084	12	27	..
751	650	190	179	5	1	241	1,552	1,188	18	25	..
736	690	176	156	4	1	230	1,484	1,145	13	29	..
772	767	225	192	2	2	251	1,900	1,262	26	42	..
913	880	195	195	2	4	287	1,728	1,458	17	42	..
767	773	209	171	4	4	261	1,600	1,250	13	18	..
880	831	212	167	5	8	289	1,850	1,350	25	31	..
753	731	174	177	6	4	217	1,492	1,278	14	25	..
826	830	210	179	5	3	251	1,692	1,294	20	33	..
9,391	8,968	2,340	2,097	55	52	3,043	19,438	15,100	229	359	..

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BOROUGH

Report of Births for the Year

	Total.	White.		Colored.		Chinese.		Native Parents.	
		M.	F.	M.	F.	M.	F.	M.	F.
January	438	219	213	4	2			99	89
February	395	204	177	10	4			99	81
March	386	198	186	1	1			80	79
April	348	169	173	2	4			80	76
May	384	184	199	..	1			93	83
June	390	187	197	3	3			85	89
July	444	235	202	2	5			95	83
August	511	249	252	4	6			110	126
September	375	186	184	3	2			85	70
October	461	235	219	2	5			103	105
November	382	187	190	1	4			80	92
December	536	267	261	6	2			115	114
Total	5,050	2,520	2,453	38	39			1,124	1,087

BOROUGH OF

Report of Births for the Year

	Total.	White.		Colored.		Chinese.		Native Parents.	
		M.	F.	M.	F.	M.	F.	M.	F.
January	164	87	76	1	..	..	..	40	42
February	148	57	90	1	..	..	..	28	45
March	139	74	64	1	..	..	..	30	22
April	153	82	70	..	1	..	..	39	33
May	144	86	54	1	3	..	..	37	32
June	206	101	101	1	3	..	..	52	56
July	139	72	65	..	2	..	..	38	29
August	150	83	64	..	3	..	..	30	26
September	169	91	74	2	2	..	..	42	30
October	161	86	73	2	..	..	..	32	30
November	176	83	91	..	2	..	..	30	29
December	124	64	57	3	..	..	..	23	23
Total	1,873	966	879	12	16	..	..	421	397



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OF QUEENS.

Ending December 31, 1906.

Foreign Parents.		Mixed Parentage.		Unknown Parentage.		Foreign Mothers of Mixed Parentage.	Attended by Physician	Attended by Midwives	Apparently Illegitimate.	Twins.	Triplets.
M.	F.	M.	F.	M.	F.						
88	85	36	40	..	1	24	246	192	4	9	..
76	66	39	32	..	2	28	215	180	2	3	..
76	67	42	39	1	2	37	212	174	3	2	..
57	61	34	36	..	4	20	198	150	4	3	..
58	67	33	49	..	1	36	232	152	1	5	..
75	71	30	40	..	..	30	232	158	..	4	..
95	80	46	44	1	..	34	262	182	1	..	..
98	85	45	45	..	2	38	298	213	2	4	..
71	91	33	23	..	2	19	199	176	2	8	..
90	87	43	31	1	1	24	270	191	4	6	..
78	76	30	26	..	..	27	209	173	1	6	..
110	104	47	44	1	1	37	305	231	2	5	..
972	940	458	449	4	16	354	2,878	2,172	26	55	..

RICHMOND.

Ending December 31, 1906.

Foreign Parents.		Mixed Parentage.		Unknown Parentage.		Foreign Mothers of Mixed Parentage.	Attended by Physician	Attended by Midwives	Apparently Illegitimate.	Twins.	Triplets.
M.	F.	M.	F.	M.	F.						
36	22	12	12	..	..	12	93	71	1	1	..
19	30	11	15	..	..	14	97	51	1	2	..
34	27	11	15	..	..	10	75	64	1	2	..
27	29	16	9	..	..	12	101	52	3	1	..
32	20	18	5	..	..	10	88	56	1	3	..
32	34	17	14	1	..	19	154	52	1	5	..
24	28	10	10	..	..	6	78	61	2	..	..
39	30	14	11	..	..	12	97	53	..	2	..
37	34	14	12	..	..	12	96	73	..	..	..
39	32	16	11	1	..	12	105	56	2	1	..
36	49	17	15	..	..	22	112	64	..	5	..
30	26	14	8	..	..	13	66	58	..	2	..
385	361	170	137	2	..	154	1,162	711	12	24	..

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Births by Nativities of Parents.

Country.	Borough of—										City of New York.	
	Manhattan.		The Bronx.		Brooklyn.		Queens.		Richmond.			
	Nativity of Both Parents.	Nativity of Mother Only of Mixed Parentage.	Nativity of Both Parents.	Nativity of Mother Only of Mixed Parentage.	Nativity of Both Parents.	Nativity of Mother Only of Mixed Parentage.	Nativity of Both Parents.	Nativity of Mother Only of Mixed Parentage.	Nativity of Both Parents.	Nativity of Mother Only of Mixed Parentage.	Nativity of Both Parents.	Nativity of Mother Only of Mixed Parentage.
Austria-Hungary	7,259	1,356	152	84	1,350	337	117	48	69	1	8,947	1,826
Bohemia	542	144	19	6	6	6	38	12	1	..	606	168
British America	84	151	17	38	67	124	14	20	4	13	186	346
England	194	535	44	99	159	394	32	50	31	20	460	1,098
France	130	136	8	19	8	40	6	9	7	2	159	206
Germany	1,946	891	491	237	1,519	682	472	191	112	43	4,540	2,044
Ireland	3,727	1,545	324	196	1,379	737	127	116	74	56	5,631	2,650
Italy	13,359	148	1,188	9	5,895	44	556	7	218	5	21,216	213
Russia and Poland	11,781	613	480	54	5,084	264	264	19	100	1	17,709	951
Scotland	73	112	22	22	61	89	12	25	28	3	196	251
Sweden	365	172	94	21	476	121	25	17	85	6	1,045	337
Switzerland	40	46	8	12	13	24	6	12	2	2	69	96
United States	11,870	3,959	2,732	735	11,635	2,817	2,211	575	818	152	29,266	8,238
Other Foreign	1,484	336	120	56	1,025	181	49	20	15	3	2,693	596
Unknown		7	19	..	1	..	..	..	2	..	22	7
Total	52,854	10,151	5,718	1,588	28,678	5,860	3,929	1,121	1,566	307	92,745	19,027

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Months.	Total.	White.		Colored.		Chinese.	
		M.	F.	M.	F.	M.	F.
January	4,155	4,006	4,007	148	148	1	..
February	3,595	3,508	3,508	87	87	..	..
March	3,441	3,342	3,343	98	98	1	..
April	3,390	3,294	3,297	94	93	2	..
May	3,344	3,232	3,235	111	109	1	..
June	5,733	5,627	5,628	105	105	1	..
July	3,480	3,360	3,362	119	118	1	..
August	3,933	3,834	3,834	99	99	..	..
September	3,971	3,818	3,821	150	150	3	..
October	4,469	4,344	4,345	124	124	1	..
November	4,333	4,191	4,193	140	139	2	1
December	4,511	4,355	4,357	155	154	1	..
Total	48,355	46,911	46,930	1,430	1,424	14	1

BOROUGH OF

Months.	Total.	White.		Colored.		Chinese.	
		M.	F.	M.	F.	M.	F.
January	2,913	2,801	2,802	111	111	1	..
February	2,553	2,490	2,490	63	63	..	..
March	2,441	2,362	2,365	78	76	1	..
April	2,291	2,216	2,220	73	71	2	..
May	2,241	2,168	2,171	72	70	1	..
June	3,690	3,622	3,624	67	66	1	..
July	2,158	2,068	2,070	89	88	1	..
August	2,755	2,684	2,684	71	71	..	..
September	2,554	2,449	2,452	102	102	3	..
October	2,957	2,863	2,864	93	93	1	..
November	2,875	2,787	2,789	86	85	2	1
December	2,914	2,808	2,810	105	104	1	..
Total	32,342	31,318	31,341	1,010	1,000	14	1



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for the Year Ending December 31, 1906.

Single.		Widowed.		Divorced.		Native.		Foreign.	
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
3,823	3,789	308	315	24	51	1,783	1,888	2,372	2,267
3,384	3,309	193	248	18	38	1,434	1,566	2,161	2,029
3,196	3,172	226	230	19	39	1,325	1,434	2,116	2,007
3,122	3,057	237	281	31	52	1,535	1,677	1,855	1,713
3,058	3,061	257	237	29	46	1,395	1,493	1,949	1,851
5,334	5,354	357	317	42	62	2,620	2,743	3,113	2,990
3,205	3,196	240	232	35	52	1,552	1,639	1,928	1,841
3,630	3,597	266	277	37	59	1,773	1,827	2,160	2,106
3,706	3,662	241	266	24	43	1,837	1,967	2,134	2,004
4,169	4,097	263	315	37	57	1,905	2,089	2,564	2,380
4,070	4,014	235	267	28	52	1,835	1,951	2,498	2,382
4,217	4,167	264	293	30	51	1,776	1,917	2,735	2,594
44,914	44,475	3,087	3,278	354	602	20,770	22,191	27,585	26,164

MANHATTAN.

Single.		Widowed.		Divorced.		Native.		Foreign.	
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
2,724	2,683	170	190	19	40	1,158	1,199	1,755	1,714
2,449	2,378	92	146	12	29	862	939	1,691	1,614
2,321	2,287	107	130	13	24	862	924	1,579	1,517
2,149	2,090	117	165	25	36	918	1,008	1,373	1,283
2,090	2,068	133	136	18	37	844	900	1,397	1,341
3,478	3,463	184	186	28	41	1,486	1,547	2,204	2,143
2,018	2,001	118	126	22	31	828	870	1,330	1,288
2,574	2,523	153	183	28	49	1,186	1,224	1,569	1,531
2,430	2,380	116	149	8	25	1,080	1,140	1,474	1,414
2,807	2,718	125	193	25	46	1,097	1,202	1,860	1,755
2,750	2,696	107	144	18	35	1,065	1,142	1,810	1,733
2,776	2,711	120	164	18	39	947	1,028	1,967	1,886
30,566	29,998	1,542	1,912	234	432	12,333	13,123	20,009	19,219

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BOROUGH OF

Months.	Total.	White.		Colored.		Chinese.	
		M.	F.	M.	F.	M.	F.
January	169	166	166	3	3	..	..
February	147	142	142	5	5	..	..
March	140	140	140	..	..	..	..
April	129	126	126	3	3	..	..
May	138	136	136	2	2	..	..
June	223	222	222	1	1	..	..
July	151	149	150	2	1	..	..
August	141	140	140	1	1	..	..
September	191	190	190	1	1	..	..
October	194	193	193	1	1	..	..
November	208	204	204	4	4	..	..
December	196	192	192	4	4	..	..
Total	2,027	2,000	2,001	27	26	..	..

BOROUGH OF

Months.	Total.	White.		Colored.		Chinese.	
		M.	F.	M.	F.	M.	F.
January	931	904	903	27	28	..	..
February	762	745	745	17	17	..	..
March	770	753	752	17	18	..	..
April	846	830	830	16	16	..	..
May	809	780	780	29	29	..	..
June	1,567	1,538	1,538	29	29	..	..
July	972	949	948	23	24	..	..
August	896	877	877	19	19	..	..
September	1,054	1,013	1,013	41	41	..	..
October	1,101	1,077	1,077	24	24	..	..
November	1,044	999	999	45	45	..	..
December	1,214	1,178	1,178	36	36	..	..
Total	11,966	11,643	11,640	323	326	..	..

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THE BRONX.

Single.		Widowed.		Divorced.		Native.		Foreign.	
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
153	152	15	17	1	..	95	94	74	75
127	129	20	16	..	2	81	96	66	51
117	125	22	14	1	1	69	77	71	63
117	115	10	12	2	2	70	86	59	43
120	124	17	13	1	1	76	77	62	61
206	206	13	15	4	2	138	141	85	82
134	141	17	10	..	..	95	98	56	53
120	126	20	12	1	3	80	87	61	54
168	176	19	14	4	1	105	122	86	69
172	180	18	11	4	3	109	127	85	67
184	186	23	20	1	2	111	119	97	89
171	179	23	16	2	1	102	122	94	74
1,789	1,839	217	170	21	18	1,131	1,246	896	781

BROOKLYN.

Single.		Widowed.		Divorced.		Native.		Foreign.	
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
820	825	107	97	4	9	431	490	500	441
691	689	66	67	5	6	409	437	353	325
682	684	83	73	5	13	334	368	436	402
745	745	97	89	4	12	456	490	390	356
717	739	85	62	7	8	374	414	435	395
1,422	1,447	136	102	9	18	820	875	747	692
877	882	84	69	11	21	491	534	481	438
810	814	79	75	7	7	409	422	487	474
952	951	91	86	11	17	543	583	511	471
994	1,003	100	91	7	7	545	601	556	500
946	938	90	93	8	13	521	546	523	498
1,102	1,115	102	89	10	10	610	648	604	566
10,758	10,832	1,120	993	88	141	5,943	6,408	6,023	5,558

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BOROUGH

Months.	Total.	White.		Colored.		Chinese.	
		M.	F.	M.	F.	M.	F.
January	99	97	97	2	2	..	..
February	85	84	84	1	1	..	..
March	55	53	52	2	3	..	..
April	92	90	89	2	3	..	..
May	122	117	117	5	5	..	..
June	169	165	164	4	5	..	..
July	143	138	138	5	5	..	..
August	97	90	90	7	7	..	..
September	112	108	108	4	4	..	..
October	162	156	156	6	6	..	..
November	147	145	145	2	2	..	..
December	137	129	129	8	8	..	..
Total	1,420	1,372	1,369	48	51	..	..

BOROUGH OF

Months.	Total.	White.		Colored.		Chinese.	
		M.	F.	M.	F.	M.	F.
January	43	38	39	5	4	..	..
February	48	47	47	1	1	..	..
March	35	34	34	1	1	..	..
April	32	32	32	..	..	..	..
May	34	31	31	3	3	..	..
June	84	80	80	4	4	..	..
July	56	56	56	..	..	..	..
August	44	43	43	1	1	..	..
September	60	58	58	2	2	..	..
October	55	55	55	..	..	..	..
November	59	56	56	3	3	..	..
December	50	48	48	2	2	..	..
Total	600	578	579	22	21	..	..

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OF QUEENS.

Single.		Widowed.		Divorced.		Native.		Foreign.	
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
87	91	12	6	..	2	71	74	28	25
75	71	9	13	1	1	54	65	31	20
48	46	7	8	..	1	35	40	20	15
83	78	9	12	..	2	69	73	23	19
102	102	17	20	3	..	81	83	41	37
153	157	15	11	1	1	122	128	47	41
124	123	17	20	2	..	103	104	40	39
86	93	11	4	..	..	70	71	27	26
97	99	14	13	1	..	75	79	37	33
148	147	13	13	1	1	115	118	47	44
140	140	7	6	..	1	100	104	47	43
124	120	13	16	..	1	95	94	42	43
1,267	1,267	144	143	9	10	990	1,033	430	387

RICHMOND.

Single.		Widowed.		Divorced.		Native.		Foreign.	
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
39	38	4	5	..	..	28	31	15	12
42	42	6	6	..	..	28	29	20	19
28	30	7	5	..	..	25	25	10	10
28	29	4	3	..	..	22	20	10	12
29	28	5	6	..	..	20	19	14	15
75	81	9	3	..	..	54	52	30	32
52	49	4	7	..	..	35	33	21	23
40	41	3	3	..	..	28	23	16	21
59	56	1	4	..	..	34	43	26	17
48	49	7	6	..	..	39	41	16	14
50	54	8	4	1	1	38	40	21	19
44	42	6	8	..	..	22	25	28	25
534	529	64	60	2	1	373	381	227	219

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Table of Mortality from the Principal Causes

Cause of Death.	Borough of									
	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
Total, all causes.....	3,373	3,310	3,765	3,690	3,510	2,877	3,321	3,399	3,170	3,079
1. Typhoid fever.....	10	21	7	21	16	15	24	32	41	60
2. Typhus fever.....	..	..	..	..	..	..	..	..	..	..
3. Malarial fevers.....	1	..	3	1	..	..	6	5	2	5
4. Small-pox	..	..	..	..	..	..	..	..	..	..
5. Measles	40	63	82	98	65	43	27	10	12	5
6. Scarlet fever.....	18	19	22	17	25	7	8	5	7	5
7. Whooping cough.....	10	4	8	11	15	13	15	24	18	22
8. Diphtheria and croup.....	57	74	87	95	102	68	55	16	24	34
9. Influenza.....	11	15	13	16	11	2	2	..	..	1
10. Asiatic cholera.....	..	..	..	..	..	..	..	..	..	..
11. Cholera nostras.....	..	..	..	..	..	..	..	..	..	..
12. Other epidemic diseases.....	26	27	14	25	26	24	19	11	14	14
13. Tuberculosis pulmonalis.....	381	345	422	397	393	361	351	375	322	357
14. Tubercular meningitis.....	30	47	50	44	40	54	43	28	43	28
15. Other forms of tuberculosis.....	17	18	29	17	23	17	20	22	12	23
16. Cancer, malignant tumors.....	137	137	124	142	121	123	138	146	144	142
17. Meningitis, simple.....	62	85	80	122	104	61	50	29	36	34
17a. Cerebro-spinal meningitis	49	55	64	93	85	47	36	17	20	25
18. Apoplexy, congestion and softening of brain.....	136	127	113	124	109	88	59	91	91	117
19. Organic heart disease.....	252	240	267	303	277	222	267	208	237	251
20. Acute bronchitis.....	96	86	106	62	51	36	38	22	23	44
21. Chronic bronchitis.....	6	7	4	4	3	2	4	..	2	1
22. Pneumonia (excluding broncho-pneumonia).....	318	313	390	346	282	165	98	108	106	165
22a. Broncho-pneumonia.....	353	300	403	381	328	209	143	145	177	200
23. Diseases of stomach (cancer excepted).....	20	15	16	13	18	10	21	15	19	21
24. Diarrhœas (under five years) ..	61	66	96	83	103	203	661	723	548	278
25. Hernia, intestinal obstruction...	31	26	26	29	36	21	31	22	28	27
26. Cirrhosis of liver.....	52	41	40	42	35	28	37	46	49	48
27. Bright's disease and nephritis..	277	289	301	285	263	219	212	243	243	241
28. Diseases of women (not cancer)	16	21	14	13	17	11	6	19	10	10
29. Puerperal septicæmia.....	15	12	13	17	18	8	8	6	8	8

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of Death in the Year 1906.

Manhattan.			Borough of The Bronx.												
Nov.	Dec.	Total.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
2,903	3,434	39,831	532	544	627	552	541	477	534	557	465	461	460	527	6,277
46	32	325	3	..	1	4	1	1	3	7	5	4	9	6	44
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	1	26	..	..	..	1	..	..	..	..	..	..	..	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9	9	463	11	16	49	29	33	28	17	3	..	2	5	6	199
11	23	167	3	4	10	2	12	7	3	1	..	1	1	1	45
7	21	168	..	1	2	..	4	1	3	9	4	5	4	1	34
59	60	731	50	53	54	21	17	11	10	4	3	7	10	12	252
8	21	100	7	..	2	3	1	..	..	..	..	..	1	2	16
..	..		..	..	..	..	..	..	..	..	..	..	..	..	..
..	..		..	..	..	..	..	..	..	..	..	..	..	..	..
17	16	233	1	3	1	1	4	1	6	8	2	1	1	1	30
356	390	4,450	121	142	138	113	127	125	109	104	106	129	111	125	1,450
32	28	467	5	4	5	5	3	4	5	7	5	4	5	6	58
20	25	243	2	2	4	1	1	2	4	2	1	3	1	5	28
127	149	1,630	19	17	18	18	23	13	23	21	15	15	20	24	226
38	43	744	3	8	10	12	12	10	8	7	7	7	5	5	94
27	27	545	1	6	6	9	8	6	2	4	5	4	2	2	55
107	118	1,280	16	18	12	24	17	14	15	11	13	18	17	18	193
287	300	3,111	38	29	32	30	24	36	23	28	36	32	39	48	395
34	44	642	16	4	10	11	7	3	..	1	2	4	11	9	78
6	10	49	2	..	4	6	2	1	1	..	..	1	1	..	18
216	343	2,850	62	44	65	65	42	26	18	13	12	24	35	47	453
228	274	3,141	16	22	25	30	16	12	17	13	19	21	26	21	238
14	13	195	3	2	5	1	3	5	2	1	2	5	5	4	38
99	82	3,003	14	8	7	14	12	25	92	93	49	19	7	11	351
24	31	332	2	5	1	1	6	2	6	6	2	4	2	4	41
41	44	503	5	5	2	5	6	6	6	8	5	11	5	5	69
235	339	3,147	34	44	43	28	57	39	46	49	38	31	31	31	471
21	19	177	2	2	..	2	2	..	2	..	3	1	1	2	17
5	14	132	..	3	7	3	2	3	2	..	1	2	..	2	25

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Cause of Death.	Borough of									
	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
30. Other puerperal diseases	24	21	33	21	26	20	25	23	9	17
31. Congenital debility and malformations	243	240	249	257	209	198	211	239	212	221
32. Old age	22	30	35	27	33	22	23	33	30	27
33. Violent deaths	189	170	187	199	238	230	252	263	215	188
a. Sunstroke	..	..	..	..	1	3	24	40	2	..
b. Other accidents	134	121	137	147	188	196	191	183	172	148
c. Homicide	10	12	12	14	11	9	10	15	15	9
d. Suicide	45	37	38	38	38	22	27	25	26	31
34. All other causes	428	419	489	450	492	371	428	411	392	410
35. Ill-defined causes	34	32	42	28	31	26	39	79	96	75
Under one year	699	751	803	787	675	635	1,025	1,144	1,013	778
One year and under two years	191	210	274	288	276	208	227	216	192	152
Total under five years	1,035	1,120	1,306	1,272	1,157	1,024	1,417	1,455	1,290	1,030
Sixty-five years and over	518	482	506	454	446	336	353	353	334	437
Seventy years and over	340	316	336	296	293	220	211	240	210	288
Males	1,896	1,824	2,041	2,061	1,996	1,633	1,875	1,861	1,768	1,708
Females	1,477	1,486	1,724	1,629	1,514	1,244	1,446	1,538	1,402	1,371
Colored	94	88	109	109	102	102	112	118	108	93
Chinese	7	5	8	7	8	7	4	5	7	6



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Manhattan.			Borough of The Bronx.												
Nov.	Dec.	Total.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
18	29	266	3	3	2	2	2	2	1	2	3	5	3	7	35
182	230	2,691	20	20	23	21	16	18	30	29	35	27	16	20	275
26	20	328	3	4	5	8	3	2	2	5	4	6	6	12	60
228	210	2,569	21	28	31	35	38	33	34	47	31	23	26	39	386
..	..	70	..	..	..	..	..	..	3	1	1	..	..	..	5
184	171	1,972	16	25	22	30	35	27	23	33	26	18	21	32	308
15	10	142	1	1	3	..	..	3	1	1	2	..	3	1	16
29	29	385	4	2	6	5	3	3	7	12	2	5	2	6	57
372	458	5,120	48	52	57	54	45	46	43	71	53	42	51	47	609
28	38	548	2	1	2	2	3	1	3	7	9	7	5	6	48
529	625	9,464	70	75	84	81	62	65	143	148	119	70	62	59	1,029
138	151	2,523	34	36	55	41	41	31	32	37	23	17	9	22	378
779	893	13,778	144	146	198	167	139	127	204	199	143	102	88	99	1,756
435	537	5,191	76	68	80	85	63	57	59	66	67	62	76	76	835
272	363	3,385	52	40	57	58	46	34	40	42	43	45	55	57	569
1,608	1,913	22,184	301	295	332	301	306	271	274	303	268	261	252	302	3,466
1,295	1,521	17,647	231	249	295	251	235	206	260	254	197	200	208	225	2,811
92	124	1,251	21	19	24	13	19	19	16	20	11	17	17	8	204
8	6	78	..	..	..	..	..	..	..	..	..	..	..	..	..

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Cause of Death.	Borough of									
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Total, all causes	2,269	2,064	2,293	2,082	2,204	1,873	2,352	2,096	1,925	1,913
1. Typhoid fever	13	10	13	6	14	13	23	31	31	35
2. Typhus fever	..	..	..	..	..	..	..	..	..	..
3. Malarial fevers	1	..	2	..	4	2	5	..	6	3
4. Small-pox	..	..	..	1	2	3	..	..	..	..
5. Measles	59	79	89	79	61	29	20	11	1	4
6. Scarlet fever	28	16	15	42	72	21	14	6	6	7
7. Whooping cough	9	6	9	6	7	5	16	19	9	19
8. Diphtheria and croup	99	100	86	61	89	45	48	33	35	49
9. Influenza	21	19	26	14	6	4	1	..	2	2
10. Asiatic cholera	..	..	..	..	..	..	..	..	..	..
11. Cholera nostras	..	..	..	..	..	..	..	..	..	..
12. Other epidemic diseases	16	13	13	16	20	7	23	21	6	12
13. Tuberculosis pulmonalis	183	204	252	219	241	228	220	194	199	204
14. Tubercular meningitis	11	20	22	18	20	24	18	16	17	17
15. Other forms of tuberculosis	18	14	11	11	21	14	17	15	18	11
16. Cancer, malignant tumors	81	69	84	78	78	89	83	79	68	100
17. Meningitis, simple	39	22	43	36	36	20	24	17	18	15
17a. Cerebro-spinal meningitis	23	16	33	25	25	11	12	10	8	7
18. Apoplexy, congestion and softening of brain	111	87	109	83	94	75	79	73	76	87
19. Organic heart disease	174	158	146	126	122	122	117	111	102	142
20. Acute bronchitis	76	64	58	61	44	23	21	26	26	32
21. Chronic bronchitis	13	23	22	12	10	17	7	13	8	16
22. Pneumonia (excluding broncho-pneumonia)	323	241	250	250	165	104	86	53	88	119
22a. Broncho-pneumonia	147	186	188	163	147	84	52	58	73	96
23. Diseases of stomach (cancer excepted)	20	19	21	16	14	17	21	21	24	23
24. Diarrhœas (under five years)	45	34	38	53	79	175	604	455	339	190
25. Hernia, intestinal obstruction	15	9	16	9	16	13	12	14	14	11
26. Cirrhosis of liver	21	28	31	28	44	30	28	36	32	34
27. Bright's disease and nephritis	204	181	174	181	196	158	170	141	139	174
28. Diseases of women (not cancer)	13	12	11	11	11	13	11	10	8	2
29. Puerperal septicæmia	12	7	8	9	3	11	5	4	5	3
30. Other puerperal diseases	11	18	21	8	12	10	15	17	16	17

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Brooklyn.			Borough of Queens.												
Nov.	Dec.	Total.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1,867	2,086	25,024	226	272	293	265	286	258	389	379	330	300	280	305	3,583
23	18	230	2	1	4	1	2	2	3	4	6	2	3	..	30
..	..		..	..	..	..	..	..	..	..	..	..	..	..	..
1	5	29	..	..	..	1	2	2	..	1	..	..	1	..	7
..	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..
2	12	446	4	2	5	4	4	3	2	1	..	..	..	..	25
9	22	258	1	4	1	2	5	1	..	..	..	..	1	..	15
11	16	132	..	1	..	1	..	1	4	3	4	1	2	6	23
70	78	793	4	9	14	6	6	2	5	7	4	13	12	12	94
2	17	114	1	3	2	2	1	..	..	..	..	..	1	1	11
..	..		..	..	..	..	..	..	..	..	..	..	..	..	..
..	..		..	..	..	..	..	..	..	..	..	..	..	..	..
4	10	161	1	4	1	..	2	..	3	4	5	..	..	..	20
201	212	2,557	26	23	31	26	19	26	22	23	27	32	31	22	308
11	13	207	..	3	1	2	3	3	3	2	2	1	2	3	25
12	20	182	1	..	2	1	2	1	3	..	..	2	1	3	16
97	69	975	7	9	7	7	8	10	11	14	11	9	12	14	119
8	17	295	4	1	6	4	7	6	5	4	3	3	1	5	49
8	6	184	1	..	1	..	2	1	3	1	2	2	1	2	16
83	117	1,074	13	13	19	8	14	8	11	11	9	11	21	22	160
131	200	1,651	26	21	31	32	26	20	29	19	25	26	18	16	289
32	61	524	3	7	13	7	5	3	1	5	1	4	4	9	62
20	14	175	1	..	1	1	2	..	..	..	..	..	..	2	7
182	230	2,097	34	38	36	19	33	11	8	8	7	20	20	37	271
116	150	1,460	16	22	23	22	12	20	12	11	14	13	16	31	212
16	19	231	1	..	..	..	3	5	1	2	1	2	..	1	16
57	35	2,104	3	6	7	11	14	25	111	101	70	25	16	5	394
15	18	162	2	4	1	2	..	2	4	8	..	4	3	2	32
37	35	384	3	5	5	3	3	7	3	3	8	5	2	4	51
182	176	2,076	20	17	30	30	30	23	36	28	23	19	26	28	310
8	7	117	..	1	1	..	2	1	..	1	..	..	2	..	8
8	4	79	1	4	1	1	1	5	2	1	2	..	1	1	20
13	12	170	..	1	..	..	6	3	3	3	2	1	1	..	20

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Cause of Death.	Borough of									
	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
31. Congenital debility and malformations	125	89	106	80	114	112	124	127	120	130
32. Old age	33	26	33	30	40	30	25	37	33	34
33. Violent deaths	92	82	94	99	132	111	147	135	117	105
a. Sunstroke	..	..	..	..	..	2	8	16	2	..
b. Other accidents	71	68	66	71	97	80	118	93	98	90
c. Homicide	7	6	6	6	14	9	4	6	5	2
d. Suicide	14	8	22	22	21	20	17	20	12	13
34. All other causes	248	218	291	256	269	234	268	250	252	208
35. Ill-defined causes	8	10	11	20	21	30	48	73	37	12
Under one year	400	360	379	358	386	425	812	700	562	422
One year, under two years	167	160	173	142	163	98	141	141	112	98
Total under five years	745	682	716	673	709	645	1,095	929	751	605
Sixty-five years and over	365	348	385	309	333	295	280	279	265	347
Seventy years and over	249	235	272	214	235	195	186	188	178	232
Males	1,193	1,112	1,234	1,137	1,221	1,016	1,314	1,145	1,022	1,012
Females	1,076	952	1,059	945	983	857	1,038	951	903	901
Colored	54	52	47	46	30	33	49	44	38	33
Chinese	1	1	1	2	..	..	1	1	..	..



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Brooklyn.			Borough of Queens.												
Nov.	Dec.	Total.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
120	94	1,341	10	17	13	8	16	17	22	17	16	20	23	20	199
42	30	393	5	6	3	7	10	7	2	5	3	10	6	4	68
106	110	1,330	14	25	12	28	20	24	35	39	43	46	24	34	344
..	..	28	..	..	..	..	..	..	3	3	1	..	..	..	7
81	84	1,017	12	24	11	23	13	22	25	28	38	39	16	28	279
8	8	81	..	..	..	..	..	..	2	1	1	..	3	3	10
17	18	204	2	1	1	5	7	2	5	7	3	7	5	3	48
236	258	2,988	22	25	22	27	27	20	39	33	36	26	29	22	328
6	7	283	1	..	1	2	1	..	9	21	8	5	1	1	50
316	333	5,453	38	56	50	52	59	64	149	154	108	65	50	58	903
77	99	1,571	8	12	15	10	15	16	24	19	14	8	19	16	176
467	530	8,547	57	82	83	75	93	91	187	187	133	87	84	94	1,253
344	407	3,957	44	38	48	51	57	39	45	46	49	61	51	61	590
227	290	2,701	32	26	35	31	38	30	35	31	37	41	36	39	411
996	1,121	13,523	127	151	168	148	148	150	216	224	179	165	153	172	2,001
871	965	11,501	99	121	125	117	138	108	173	155	151	135	127	133	1,582
38	39	503	6	4	2	9	10	2	12	10	1	4	7	13	80
..	..	7	..	..	..	..	..	..	..	..	..	..	..	..	..

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Cause of Death.	Borough of										
	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
Total, all causes	118	103	126	97	107	109	198	184	131	100	100
1. Typhoid fever	..	..	..	..	..	..	1	3	1	3	2
2. Typhus fever	..	..	..	..	..	..	..	..	..	..	..
3. Malarial fever	..	..	..	..	..	..	..	1	..	..	..
4. Small-pox	..	..	..	..	..	..	..	..	..	..	..
5. Measles	2	2	3	2	2	..	1	..	..	..	..
6. Scarlet fever	..	..	..	1	1	1	..	1	..	1	..
7. Whooping-cough	..	..	..	..	1	..	3	2	1	..	1
8. Diphtheria and croup	4	2	..	2	2	1	2	5	1	3	2
9. Influenza	..	..	..	..	..	..	..	..	..	..	..
10. Asiatic cholera	..	..	..	..	..	..	..	..	..	..	..
11. Cholera nostras	..	..	..	..	..	..	..	..	..	..	..
12. Other epidemic diseases	3	..	1	..	..	..	..	1	1	1	..
13. Tuberculosis pulmonalis	14	16	24	16	10	18	21	13	16	11	14
14. Tubercular meningitis	..	..	1	..	..	1	2	2	..	1	..
15. Other forms of tuberculosis	..	1	..	1	1	..	1	1	..	..	..
16. Cancer, malignant tumors	5	2	4	6	2	5	6	5	5	3	8
17. Meningitis, simple	1	1	2	3	3	2	3	1	2	3	2
17a. Cerebro-spinal meningitis	1	..	2	..	2	1	1	..	2	1	2
18. Apoplexy, congestion and softening of brain	4	8	4	5	8	7	4	5	5	5	7
19. Organic heart disease	13	7	9	8	11	4	16	10	12	4	6
20. Acute bronchitis	4	1	..	1	..	1	1	2	1	..	2
21. Chronic bronchitis	..	..	1	..	..	1	1	..	..	1	1
22. Pneumonia (excluding broncho-pneumonia)	20	13	8	6	11	2	6	4	4	5	5
22a. Broncho-pneumonia	4	5	9	9	3	1	4	1	4	2	4
23. Diseases of stomach (cancer excepted)	..	..	1	2	1	1	1	2	..	..	..
24. Diarrhœas (under 5 years)	4	1	6	1	..	3	64	54	18	8	1
25. Hernia (intestinal obstruction)	..	2	..	..	1	1	2	2	..	1	..
26. Cirrhosis of liver	3	3	3	2	1	2	1	1	1	..	5
27. Bright's disease and nephritis	9	6	12	7	8	4	4	15	7	12	8
28. Diseases of women (not cancer)	1	..	..	..	..	1	1	..	3	..	..
29. Puerperal septicæmia	2	2	1	1	1	..	..	..	..	..	..
30. Other puerperal diseases	1	..	1	..	1	..	..	1	2	..	..
31. Congenital debility and malformations	4	4	5	6	5	17	11	9	12	12	4



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Richmond.		City of New York.												
Dec.	Total	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
115	1,488	6,518	6,293	7,104	6,686	6,648	5,594	6,794	6,615	6,021	5,853	5,610	6,467	76,203
..	10	28	32	25	32	33	31	54	77	84	104	83	56	639
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	1	2	..	5	3	6	4	11	7	8	8	4	6	64
..	..	..	..	..	1	2	3	..	..	..	..	..	..	6
..	12	116	162	228	212	165	103	67	25	13	11	16	27	1,145
1	6	50	43	48	64	115	37	25	13	13	14	22	47	491
2	10	19	12	19	18	27	20	41	57	36	47	25	46	367
4	28	214	238	241	185	116	127	120	65	67	106	153	166	1,898
..	..	40	37	43	35	19	6	3	..	2	3	12	41	241
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	7	47	47	30	42	52	32	51	45	28	28	22	27	451
17	190	725	730	867	771	790	758	723	709	670	733	713	766	8,955
1	8	46	74	79	69	66	86	71	55	67	51	50	51	765
..	5	38	35	46	31	48	34	45	40	31	39	34	53	474
4	55	249	234	237	251	232	240	261	265	243	269	264	260	3,005
1	24	109	117	141	177	162	99	90	58	66	62	54	71	1,206
..	12	75	77	106	127	122	66	54	32	37	39	40	37	812
3	65	280	253	257	244	242	192	168	191	194	238	235	278	2,772
11	111	503	455	485	499	460	404	452	376	412	455	481	575	5,557
..	13	195	162	187	142	107	66	61	56	53	84	83	123	1,319
..	5	22	30	32	23	17	21	13	13	10	19	28	26	254
12	96	757	649	749	686	533	308	216	186	217	333	464	669	5,767
4	50	536	535	648	605	506	326	228	228	287	332	390	480	5,101
..	8	44	36	43	32	39	38	46	41	46	51	35	37	488
4	164	127	115	154	162	208	431	1,532	1,426	1,024	520	180	137	6,016
1	10	50	46	44	41	59	39	55	52	44	47	44	56	577
2	24	84	82	81	80	89	73	75	94	95	98	90	90	1,031
12	104	544	537	560	531	554	443	468	476	450	477	482	586	6,108
1	7	32	36	26	26	32	26	20	30	24	13	32	29	326
..	7	30	28	30	31	25	27	17	11	16	13	14	21	263
3	9	39	43	57	31	47	35	44	46	32	40	35	51	500
5	94	402	370	396	372	360	362	397	421	395	410	345	370	4,600

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Cause of Death.	Borough of										
	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
32. Old age	5	3	3	3	1	3	1	6	4	2	2
33. Violent deaths	1	6	12	4	17	15	16	10	9	5	8
a. Sunstroke	..	..	..	..	..	..	1	1	..	..	..
b. Other accidents	1	4	7	3	16	11	13	9	9	5	8
c. Homicide	..	1	..	..	1	..	..	..	..	..	..
d. Suicide	..	1	5	1	..	4	2	..	..	..	..
34. All other causes	14	17	16	10	16	15	16	15	14	12	17
35. Ill-defined causes	..	1	..	1	..	3	9	12	8	5	1
Under one year	13	7	14	13	7	27	89	78	41	29	11
One year and under two years	3	4	7	5	3	3	14	9	4	4	4
Total under five years	19	13	24	20	13	32	108	91	47	36	18
Sixty-five years and over	35	34	27	24	29	20	17	29	27	14	27
Seventy years and over	28	27	20	18	23	14	14	22	21	8	22
Males	66	64	78	67	65	69	117	99	71	57	58
Females	52	39	48	30	42	40	81	85	60	43	42
Colored	3	2	2	..	2	..	1	4	1	2	1
Chinese	..	..	..	..	..	1	..	..	..	..	..

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Richmond.		City of New York.												
Dec.	Total	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
8	41	68	69	79	75	87	64	53	86	74	79	82	74	890
9	112	317	312	336	365	444	413	484	494	415	367	392	402	4,741
..	2	..	..	..	..	1	5	39	61	6	..	..	..	112
7	93	235	243	242	274	348	336	370	346	343	300	310	322	3,669
2	4	18	20	21	20	26	21	17	23	23	11	29	24	253
..	13	64	49	73	71	69	51	58	64	43	56	53	56	707
10	172	760	730	875	797	850	686	795	780	747	698	705	794	9,217
..	40	45	44	56	53	56	60	108	192	158	104	41	52	969
11	340	1,221	1,240	1,330	1,290	1,189	1,215	2,218	2,224	1,843	1,364	968	1,086	17,188
6	66	403	420	526	485	498	356	438	422	345	279	247	294	4,713
22	443	2,001	2,032	2,327	2,207	2,111	1,919	3,011	2,861	2,364	1,870	1,436	1,638	25,777
37	320	1,038	970	1,046	923	928	747	754	773	743	921	933	1,118	10,894
26	243	701	644	720	617	635	493	486	523	489	614	612	775	7,309
63	874	3,583	3,446	3,853	3,714	3,736	3,140	3,796	3,632	3,308	3,203	3,067	3,570	42,048
52	614	2,935	2,847	3,251	2,972	2,912	2,454	2,998	2,983	2,713	2,650	2,543	2,897	34,155
..	18	178	165	184	177	163	156	190	196	159	149	155	184	2,056
..	1	8	6	9	9	8	8	5	6	7	6	8	6	86

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Deaths from Zymotic and Certain

BOROUGH OF

Wards.	Area in Acres.	Population by Census of 1900.	Number of Persons to the Acre.	Cerebro-spinal Meningitis.	Diphtheria and Croup.	Typhoid Fever.
First	154.0	9,516	61.8	19	4	4
Second	81.0	1,488	18.4	..	1	..
Third	95.0	1,797	18.9	..	1	2
Fourth	83.0	19,554	235.7	3	24	1
Fifth	168.0	8,298	49.4	9	2	4
Sixth	86.0	20,004	232.7	10	6	3
Seventh	198.0	89,237	450.7	36	41	14
Eighth	183.0	29,059	158.8	8	19	4
Ninth	322.0	59,650	185.2	20	33	15
Tenth	110.0	71,879	653.4	22	19	5
Eleventh	196.0	99,144	505.8	31	44	12
Twelfth	5,504.0	476,602	86.6	117	142	95
Thirteenth	107.0	64,117	599.2	25	19	9
Fourteenth	96.0	34,035	354.5	21	27	2
Fifteenth	198.0	24,066	121.5	11	11	8
Sixteenth	349.0	52,808	151.3	13	9	12
Seventeenth	331.0	130,796	395.1	33	58	12
Eighteenth	450.0	61,325	136.3	21	48	9
Nineteenth	1,481.0	257,448	173.8	57	89	41
Twentieth	444.0	89,798	202.2	31	40	25
Twenty-first	411.0	60,211	146.5	24	31	12
Twenty-second	1,529.0	189,261	123.7	34	63	36
Total	12,576.0	1,850,093	147.2	545	731	325

BOROUGH OF

Twenty-third	4,267.0	132,413	31.0	41	226	36
Twenty-fourth	22,255.8	43,009	1.9	14	26	8
Total	26,522.8	175,422	6.6	55	252	44

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Other Preventable Diseases, by Wards.

MANHATTAN.

Malarial Fevers.	Measles.	Scarlet Fever.	Small-pox.	Whooping Cough.	Diarrhœal Diseases.	Tuberculosis Pulmonalis.	Pneumonia.	Broncho Pneumonia.	All Causes.	Deaths in Institutions.	Deaths of Children under 5 Years.
..	6	4	..	5	39	47	43	34	428	63	127
..	1	..	..	..	1	4	1	1	23	..	6
1	..	..	..	..	..	15	6	1	86	..	5
..	20	2	..	1	42	104	87	92	701	37	297
..	1	1	..	..	15	35	20	12	283	332	50
1	16	..	..	2	44	96	71	71	567	18	206
1	22	8	..	13	146	146	114	150	1,511	499	651
..	6	6	..	1	70	80	56	65	626	30	228
3	13	8	..	6	155	216	122	95	1,666	509	479
1	12	6	..	10	96	127	74	88	966	..	401
..	19	8	..	8	163	135	116	172	1,498	122	704
6	102	41	..	48	738	904	714	728	9,872	2,711	3,026
..	19	7	..	1	72	50	48	68	725	..	339
..	22	7	..	..	112	67	60	164	838	..	484
..	5	..	..	1	43	69	49	49	541	1	155
2	18	5	..	2	88	160	65	79	1,202	26	285
1	35	10	..	11	240	226	171	261	2,346	96	1,019
..	16	7	..	8	133	192	104	96	1,737	1,586	595
2	71	16	..	17	550	705	335	436	6,366	5,025	2,579
1	17	8	..	6	127	304	149	129	1,946	153	550
2	17	3	..	4	135	227	127	63	1,757	2,815	418
5	25	20	..	24	259	541	318	287	4,146	843	1,174
26	463	167	..	168	3,268	4,450	2,850	3,141	39,831	14,866	13,778

THE BRONX.

..	183	43	..	21	269	941	276	153	4,258	1,926	1,267
1	16	2	..	13	115	509	177	85	2,019	713	489
1	199	45	..	34	384	1,450	453	238	6,277	2,639	1,756

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Wards.	Area in Acres.	Population by Census of 1900.	Number of Persons to the Acre.	Cerebro-spinal Meningitis.	Diphtheria and Croup.	Typhoid Fever.
First	233.0	20,307	87.2	3	9	4
Second	97.7	8,565	87.7	1	1	..
Third	161.4	17,949	111.2	4	7	..
Fourth	111.3	12,568	112.9	5	5	1
Fifth	119.4	18,862	158.0	5	8	1
Sixth	302.9	42,485	140.2	15	27	23
Seventh	458.5	40,471	88.3	3	13	5
Eighth	1,843.2	52,414	28.4	7	47	26
Ninth	623.6	42,876	68.8	6	20	5
Tenth	318.7	39,100	122.7	3	26	6
Eleventh	252.6	22,608	89.5	7	4	12
Twelfth	663.1	30,354	45.8	2	22	..
Thirteenth	230.3	24,029	104.3	5	11	4
Fourteenth	282.6	31,483	111.4	7	24	1
Fifteenth	244.8	30,269	123.6	3	19	1
Sixteenth	244.8	56,550	231.0	6	24	1
Seventeenth	823.3	57,309	69.6	3	57	10
Eighteenth	873.0	25,133	28.8	6	23	19
Nineteenth	413.8	37,645	91.0	2	18	6
Twentieth	461.5	25,446	55.1	5	6	8
Twenty-first	483.2	58,957	122.0	9	24	1
Twenty-second	1,361.6	66,575	48.8	5	24	10
Twenty-third	736.0	61,813	84.0	5	8	19
Twenty-fourth	1,198.5	31,767	26.5	7	17	10
Twenty-fifth	567.8	48,328	85.1	2	20	1
Twenty-sixth	3,590.2	66,086	18.4	14	48	8
Twenty-seventh	400.7	43,961	109.7	6	26	2
Twenty-eighth	884.4	77,912	88.1	11	25	18
Twenty-ninth	3,800.0	27,188	7.2	25	182	23
Thirtieth	5,404.1	24,700	4.6	1	39	2
Thirty-first	6,312.3	14,609	2.3	1	5	2
Thirty-second	5,479.5	8,243	1.5	..	4	1
Total	38,977.8	1,166,582	29.9	184	793	230

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BROOKLYN.

Malarial Fevers.	Measles.	Scarlet Fever.	Small-pox.	Whooping Cough.	Diarrhœal Diseases.	Tuberculosis Pulmonalis.	Pneumonia.	Broncho Pneumonia.	All Causes.	Deaths in Institutions.	Deaths of Children under 5 Years.
..	5	..	..	1	60	22	26	16	369	93	152
..	3	2	..	1	25	15	24	20	196	..	80
..	4	..	..	4	24	31	28	5	277	58	107
2	5	3	..	1	26	29	35	11	268	3	99
..	11	3	..	..	79	33	36	32	392	..	209
4	17	5	..	2	99	367	144	93	1,569	838	352
2	18	3	..	2	45	55	64	42	619	11	195
2	10	3	..	5	124	95	88	90	1,217	155	465
..	11	2	..	5	66	68	67	37	717	49	224
..	13	1	..	3	96	80	76	59	749	..	328
3	9	..	..	5	51	49	49	36	613	210	194
1	21	5	..	11	61	45	55	73	601	..	278
..	2	..	..	1	34	37	63	21	562	229	117
..	5	2	..	3	121	55	56	62	654	..	360
1	3	3	..	3	67	48	65	44	522	..	230
..	5	9	..	3	102	64	89	53	707	2	343
3	9	13	..	4	146	89	83	100	1,109	..	464
2	3	..	..	2	72	111	61	47	793	320	235
1	4	3	..	1	37	47	62	25	560	18	167
..	5	..	..	2	54	71	61	36	734	316	176
..	6	..	..	8	65	100	78	46	829	2	282
1	11	4	..	3	79	102	101	66	1,227	222	313
1	4	7	..	6	53	60	71	31	931	155	192
1	6	8	..	7	67	190	83	39	1,077	499	244
..	5	5	..	2	41	72	57	30	739	74	190
1	27	9	..	13	167	127	99	132	1,331	94	619
..	6	3	..	8	90	73	61	56	713	29	312
1	2	7	..	5	96	125	98	53	1,366	293	337
1	157	150	6	8	69	222	119	44	2,276	1,854	672
1	57	6	..	5	96	46	65	45	806	240	431
1	2	1	..	7	40	13	23	11	358	47	130
..	..	1	..	1	14	16	10	5	143	..	50
29	446	258	6	132	2,266	2,557	2,097	1,460	25,024	5,811	8,547

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BOROUGH OF

Wards.	Area in Acres.	Population by Census of 1900.	Number of Persons to the Acre.	Cerebro-spinal Meningitis.	Diphtheria and Croup.	Typhoid Fever.
First	4,650	48,272	10.4	4	24	9
Second	14,700	40,903	2.8	8	42	6
Third	22,000	25,870	1.2	2	6	4
Fourth	36,600	30,761	.8	2	21	8
Fifth	3,770	7,193	1.9	..	1	3
Total	81,720	152,999	1.9	16	94	30

BOROUGH OF

Wards.	Area in Acres.	Population by Census of 1900.	Number of Persons to the Acre.	Cerebro-spinal Meningitis.	Diphtheria and Croup.	Typhoid Fever.
First	3,340	21,441	6.4	8	16	4
Second	4,130	13,200	3.2	3	3	4
Third	10,050	13,701	1.4	..	1	..
Fourth	8,180	9,516	1.2	..	5	1
Fifth	10,900	9,163	.8	1	3	1
Total	36,600	67,021	1.8	12	28	10

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QUEENS.

Malarial Fevers.	Measles.	Scarlet Fever.	Small-pox.	Whooping Cough.	Diarrhœal Diseases.	Tuberculosis Pulmonalis.	Pneumonia.	Broncho Pneumonia.	All Causes.	Deaths in Institutions.	Deaths of Children under 5 Years.
..	6	4	..	1	95	83	79	85	1,033	253	327
1	7	6	..	12	155	120	92	69	1,071	9	462
1	3	..	..	2	47	38	30	10	492	100	164
4	9	5	..	8	97	64	61	36	807	125	258
1	..	..	..	..	20	3	9	12	180	52	43
7	25	15	..	23	414	308	271	212	3,583	539	1,254

RICHMOND.

Malarial Fevers.	Measles.	Scarlet Fever.	Small-pox.	Whooping Cough.	Diarrhœal Diseases.	Tuberculosis Pulmonalis.	Pneumonia.	Broncho Pneumonia.	All Causes.	Deaths in Institutions.	Deaths of Children under 5 Years.
..	5	2	..	4	43	104	46	28	692	412	128
1	1	..	..	1	21	31	10	6	200	37	51
..	3	2	..	1	27	21	20	8	201	18	78
..	1	2	..	2	68	23	8	8	274	106	152
..	2	..	..	2	14	11	12	..	121	16	34
1	12	6	..	10	173	190	96	50	1,488	589	443

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BOROUGH OF

Deaths of Males by Age, and Cause of Death,

Cause of Death.	Total Both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
I.—General Diseases.											
1. Typhoid fever	325	206	1	1	1	..	2	5	7	12	21
2. Typhus fever	..	..	..	..	..	..	..	..	..	..	..
3. Relapsing fever	..	..	..	..	..	..	..	..	..	..	..
4. Malarial fever	26	21	2	1	1	1	..	5	..	..	..
5. Small-pox	..	..	..	..	..	..	..	..	..	..	..
6. Measles	463	232	68	101	33	12	8	222	10	..	..
7. Scarlet fever	167	89	4	14	20	18	6	62	17	7	1
8. Whooping cough	168	83	47	22	8	5	..	82	1	..	..
9. Diphtheria and croup.	731	417	52	132	86	47	30	347	53	6	1
10. Influenza	100	44	4	..	1	..	..	5	2	..	1
11. Miliary fever	..	..	..	..	..	..	..	..	..	..	..
12. Asiatic cholera	..	..	..	..	..	..	..	..	..	..	..
13. Cholera nostras	..	..	..	..	..	..	..	..	..	..	..
14. Dysentery	36	16	1	1	..	..	..	2	..	..	1
15. Plague	..	..	..	..	..	..	..	..	..	..	..
16. Yellow fever	..	..	..	..	..	..	..	..	..	..	..
17. Leprosy	..	..	..	..	..	..	..	..	..	..	..
18. Erysipelas	190	99	32	..	..	..	..	32	..	4	..
19. Other epidemic diseases	7	2	1	..	..	..	..	1	..	..	..
20. Pyæmia, septicæmia	49	32	9	1	2	..	..	12	..	..	..
21. Glanders	6	6	..	..	..	..	..	..	..	..	..
22. Malignant pustule	1	1	..	..	..	..	..	..	..	..	..
23. Hydrophobia	5	3	..	..	..	..	1	1	..	1	..
24. Actinomycosis	3	1	..	..	..	..	..	..	..	..	..
24a. Trichinosis	..	..	..	..	..	..	..	..	..	..	..
25. Pellagra	..	..	..	..	..	..	..	..	..	..	..
26. Tuberculosis of larynx	23	15	..	..	..	..	..	..	..	..	..
27. Tuberculosis of lungs	4,450	2,887	26	26	15	4	2	73	12	16	107
28. Tubercular meningitis	467	246	70	48	34	20	9	181	25	5	..
29. Abdominal tuberculosis	110	62	12	5	4	1	1	23	7	1	2
30. Pott's disease	36	20	..	..	..	3	1	4	1	1	1
31. Cold abscess	4	2	1	..	..	..	..	1	..	..	..
32. White swelling	23	13	..	..	..	..	..	..	7	..	..
33. Tuberculosis of other organs	26	17	..	..	1	..	..	1	2	..	..
34. General tuberculosis	21	10	2	1	..	..	..	3	2	2	2



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MANHATTAN.

for the Year Ending December 31, 1906.

20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
38	26	30	29	14	8	5	3	1	4	2	1	..	..	7	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	1	2	4	2	3	..	..	..	..	..	..	1	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..
..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..
4	2	2	..	1	..	..	1	..	..	..	..	..	..	3	..
2	1	3	2	4	2	4	3	4	3	2	3	2	1	2	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	1	1	..	1	..	3	..	2	..	2	1	..	1	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	4	7	12	4	6	10	5	4	7	1	1	..	..	1	..
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
4	..	1	4	2	3	3	1	2	..	..	..	..	..	1	..
1	..	..	3	1	..	..	1	..	..	..	..	..	..	..	..
..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	5	5	1	2	..	2	..	..	..	..	..	..	1	..
232	350	428	444	319	310	221	164	102	66	26	12	2	3	130	38
9	8	5	3	2	5	1	2	..	..	..	..	..	..	9	..
3	4	6	3	3	4	2	..	2	2	..	..	..	..	1	..
3	2	..	..	3	2	1	1	..	..	..	..	..	1	1	..
..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	..	1	1	2	..	1	..	..	..	..	..	..	..	..
3	1	3	2	2	..	..	2	1	..	..	..	..	..	1	..
..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..

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Cause of Death.	Total Both Sexes.	All Ages.	Under 1 year.	1	2	3	4	Total Under 5.	5	10	15
35. Scrofula	2	..	..	..	..	..	..	..	..	..	..
36. Syphilis	199	120	61	2	2	1	..	66	1	..	1
37. Gonorrhœa (adults)	5	3	..	..	..	..	..	..	..	..	..
38. Gonorrhœa (children)	5	2	2	..	..	..	..	2	..	..	..
39. Cancers, etc., of the mouth	57	48	..	..	..	..	..	..	..	..	..
40. Cancer of stomach, liver	633	319	1	..	..	..	..	1	..	1	..
41. Cancer of intestines, rectum	259	115	..	..	..	..	..	..	..	..	..
42. Cancer of female genital organs	244	..	..	..	..	..	..	..	..	..	..
43. Cancer of breast	131	1	..	..	..	..	..	..	..	..	..
44. Cancer of skin	47	32	..	..	..	..	..	..	2	1	..
45. Cancer of other organs and unspecified	259	162	1	1	..	..	..	2	2	2	5
46. Other tumors (except of female genital organs)	23	11	1	..	..	..	..	1	1	2	1
47. Acute articular rheumatism	211	89	1	..	..	2	3	6	11	8	8
48. Chronic rheumatism and gout	79	32	..	..	..	..	..	..	1	1	1
49. Scurvy	6	2	1	..	..	1	..	2	..	..	..
50. Diabetes	366	165	..	..	..	..	..	..	..	..	7
51. Exophthalmic goitre	21	..	..	..	..	..	..	..	..	..	..
52. Addison's disease	4	1	..	..	..	..	..	..	..	..	..
53. Leukæmia	42	24	..	..	1	..	..	1	2	..	..
54. Anæmia, chlorosis	54	23	1	..	2	..	..	3	3	..	..
55. Other general diseases	..	..	..	..	..	..	..	..	..	..	..
56. Alcoholism, acute and chronic	392	309	..	..	..	..	..	..	1	..	..
57. Lead poisoning	1	1	..	..	..	..	..	..	..	..	..
58. Other chronic poisonings of occupation	1	1	..	..	..	..	..	..	..	..	..
59. Other chronic poisonings	8	4	..	..	..	..	..	..	..	..	..
II.—Diseases of Nervous System and Organs of Sense.											
60. Encephalitis	6	3	1	..	..	..	..	1	..	..	1
61. Simple meningitis	744	416	95	45	32	19	15	206	69	24	28
61a. (of which) Cerebro-spinal meningitis.	545	304	56	26	25	15	15	137	59	23	26
62. Locomotor ataxia	48	39	..	..	..	..	..	..	..	..	..
63. Other diseases of spinal cord	53	30	..	..	..	..	1	1	..	..	..
64. Apoplexy, congestion of brain	1,255	644	7	..	..	..	..	7	1	..	..
65. Softening of brain	25	12	..	..	..	..	..	..	..	..	..
66. Paralysis unspecified	131	74	1	..	..	..	1	2	..	..	..
67. General paresis	98	57	..	..	..	..	..	..	..	..	..



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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	8	6	8	4	9	7	4	3	..	..	..	..	..	6	1
..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	1	..	7	3	3	9	6	4	9	4	..	1	..	1	1
..	3	7	17	24	35	46	58	43	25	30	20	7	2	8	..
2	2	4	2	9	16	10	21	16	16	13	1	2	1	..	..
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..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
1	1	1	1	2	2	3	6	5	6	1	..	..	..	..	..
5	6	10	7	15	11	15	20	21	20	12	6	2	1	1	1
..	..	..	2	..	1	..	1	..	1	1	..	..	..	..	..
3	5	5	3	2	12	10	5	4	3	2	1	1	..	..	..
1	1	1	..	..	2	3	4	4	6	2	3	1	1	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	1	2	12	9	19	23	26	19	16	17	3	5	1	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
..	1	1	1	5	2	1	1	3	3	1	1	1	..	1	..
..	2	1	2	3	2	1	3	1	2	..	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	25	53	54	44	50	27	19	21	7	1	3	..	..	3	..
..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
..	1	..	1	1	..	..	..	..	1	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
23	13	7	16	8	9	5	4	2	1	..	1	..	..	17	..
21	11	5	9	5	5	2	..	1	..	..	..	..	..	10	..
..	..	..	1	7	3	6	12	6	1	2	..	1	..	..	..
..	2	1	2	6	4	3	..	3	4	3	1	..	..	..	..
2	3	13	18	46	56	86	81	90	93	65	47	24	12	8	3
..	..	..	..	1	..	3	..	2	1	..	2	..	3	1	..
..	2	5	6	8	10	8	6	11	6	3	1	2	4	1	..
..	..	3	5	16	9	8	4	4	5	2	..	1	..	..	..

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Cause of Death.	Total Both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
68. Other forms of insanity	20	8	..	..	..	..	..	..	..	..	1
69. Epilepsy	71	44	5	..	..	..	..	5	1	1	2
70. Convulsions (not puerperal)	4	2	..	..	..	..	..	..	2	..	..
71. Convulsions of infants	415	223	193	21	7	1	1	223	..	..	..
72. Tetanus, trismus	31	18	11	..	..	..	..	11	1	1	..
73. Chorea	4	3	..	1	..	..	..	1	..	..	1
74. Other nervous diseases	122	80	..	..	3	..	..	3	3	3	2
75. Diseases of the eyes	4	1	1	..	..	..	..	1	..	..	..
76. Diseases of the ear	149	89	17	7	2	1	1	28	10	7	7
III.—Diseases of Circulatory System.											
77. Pericarditis	23	14	2	..	..	..	..	2	1	..	..
78. Acute endocarditis	120	70	3	1	1	1	..	6	4	4	6
79. Organic heart diseases	3,111	1,515	5	3	1	3	2	14	19	27	32
80. Angina pectoris	77	50	..	..	..	..	..	..	..	..	..
81. Diseases of arteries, aneurism, etc.	235	142	..	..	..	..	..	..	..	..	..
82. Embolism, thrombosis	71	30	1	1	..	..	1	3	..	2	..
83. Diseases of veins (hæmorrhoids, varices, phlebitis, etc.)	12	6	..	..	..	..	..	..	..	..	..
84. Diseases of lymphatics (lymphangitis, etc.)	15	7	2	..	1	1	..	4	..	1	..
85. Hæmorrhage	75	45	32	1	..	..	..	33	..	2	..
86. Other diseases of circulatory system	1	1	1	..	..	..	..	1	..	..	..
IV.—Diseases of Respiratory System.											
87. Diseases of nasal fossæ	1	1	1	..	..	..	..	1	..	..	..
88. Diseases of the larynx	21	12	6	1	..	..	2	9	..	..	1
89. Diseases of thyroid gland	3	2	..	..	..	..	..	..	..	..	..
90. Acute bronchitis	642	306	194	49	10	4	1	258	1	..	..
91. Chronic bronchitis	49	30	..	..	..	1	..	1	2	..	..
92. Broncho-pneumonia	3,141	1,670	782	406	109	45	20	1,362	29	5	8
93 Pneumonia	2,850	1,678	152	123	52	20	11	358	35	10	27
94. Pleurisy	205	138	15	25	11	5	1	57	7	3	1
95. Congestion of lungs, pulmonary apoplexy	79	37	12	..	2	..	..	14	..	..	..
96. Gangrene of lung	37	28	2	1	..	..	..	3	..	1	1
97. Asthma	104	60	..	..		..	..	..	..	..	1
98. Pulmonary emphysema	77	52	..			..	..	..	..	..	..
99. Other diseases of respiratory system (phthisis excepted)	25	16	..		.	..	..	1	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
..	..	..	2	2	..	1	..	..	1	1	..	..	..	..	..
7	4	6	3	6	1	..	2	1	4	..	..	1	..	2	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	..
1	1	1	..	2	..	..	..	..	..	..	..	..	..	..	..
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9	15	11	14	6	5	2	2	2	1	2	..	..	..	2	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
8	5	8	6	3	..	2	2	2	..	..	1	..	..	..	..
..	1	3	..	..	2	1	1	1	1	..	..	1	..	..	..
1	6	6	2	6	4	4	6	4	4	2	4	1	..	..	..
46	61	83	111	125	134	154	156	171	141	119	65	31	26	45	7
1	..	2	3	5	5	7	7	10	4	4	1	1	..	..	..
1	4	4	8	14	13	12	7	13	16	15	14	13	8	8	..
1	1	..	2	..	2	3	1	3	6	3	3	..	..	..	..
1	..	1	..	1	..	1	1	..	..	..	1	..	..	..	..
1	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
1	1	1	3	..	1	..	2	..	1	..	..	..	..	6	..
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..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..
..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..
..	1	1	2	2	3	..	4	4	7	12	3	3	5	9	1
..	..	..	1	..	2	2	3	2	6	3	4	2	2	..	..
6	18	9	12	20	21	22	22	28	37	26	20	14	11	67	4
69	102	126	140	152	134	125	103	110	78	54	29	15	11	63	3
5	6	5	12	9	4	5	10	7	1	3	2	..	1	4	..
..	1	..	2	2	..	1	..	2	2	1	4	2	6	..	..
1	2	..	2	4	7	1	4	2	..	..	..	..	..	..	..
..	..	..	..	4	8	6	9	10	8	6	2	3	3	..	..
..	..	..	2	3	5	5	6	8	8	5	3	2	5	1	..
..	3	1	1	3	3	1	1	..	1	1	..	..	..	1	..

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Cause of Death.	Total Both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
V.—Diseases of Digestive System.											
100. Diseases of mouth and adnexa	3	1	1	..	..	..	..	1	..	..	..
101. Diseases of pharynx	35	24	11	4	1	1	..	17	2	..	..
102. Diseases of œsophagus	..	..	..	..	..	..	..	..	..	..	..
103. Ulcer of the stomach	80	55	1	..	..	..	..	1	..	..	..
104. Other diseases of stomach (cancer excepted)	115	51	2	1	1	..	..	4	..	1	1
105. Diarrhœa and enteritis (under 2 years)	2,901	1,549	1,337	212	..	..	..	1,549	..	..	..
(of which) chronic diarrhœa	..	..	..	..	..	..	..	..	..	..	..
106. Diarrhœa and enteritis (2 years and over)	367	186	..	..	42	15	3	60	12	3	3
107. Intestinal parasites	3	3	..	..	..	..	..	..	1	..	1
108. Hernia, Intestinal obstruction	332	172	31	4	2	3	1	41	1	..	3
109 Other diseases of intestines	10	8	1	..	..	..	..	1	..	..	..
110. Acute yellow atrophy of liver	8	3	..	..	..	..	..	..	..	..	1
111. Hydatid tumor of liver	3	3	..	..	..	..	..	..	..	..	..
112. Cirrhosis of liver	503	327	..	..	..	..	..	..	..	1	..
113. Biliary calculi	107	49	1	..	..	..	..	1	..	..	1
114. Other diseases of liver	71	42	2	..	..	..	..	2	..	1	..
115. Diseases of spleen	5	4	..	..	..	..	..	..	..	..	..
116. Simple peritonitis (non-puerperal)	45	23	3	..	..	2	1	6	..	..	1
117. Other diseases of digestive system (except tuberculosis and cancer)	13	7	..	..	..	..	..	..	..	..	..
118. Appendicitis and iliac abscess	310	193	..	1	..	1	1	3	15	17	23
VI.—Diseases of Genito-urinary System.											
119. Acute nephritis	336	159	17	4	4	6	..	31	10	2	6
120. Bright's disease	2,811	1,577	1	..	2	2	..	5	..	4	6
121. Other diseases of kidneys and adnexa	48	25	..	..	..	..	..	..	..	..	..
122. Urinary calculus	17	15	..	..	..	..	..	..	..	..	..
123. Diseases of bladder	39	28	1	1	..	..	..	2	1	..	..
124. Diseases of urethra, urinary abscess, etc.	29	20	..	..	..	..	..	..	..	..	..
125. Diseases of the prostate	43	43	..	..	..	..	..	..	..	..	..
126. Non-venereal diseases of male genital organs	2	2	1	..	..	..	..	1	..	..	..
127. Metritis	..	..	..	..	..	..	..	..	..	..	..
128. Uterine hæmorrhage (not puerperal)	3	..	..	..	..	..	..	..	..	..	..
129. Uterine tumor (not cancer)	58	..	..	..	..	..	..	..	..	..	..
130. Other diseases of uterus	16	..	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	2	..	1	..	..	..	1	..	..	..	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	1	9	2	10	10	5	6	4	2	..	2	..	2	..	..
..	2	2	3	1	3	2	9	5	1	8	6	3	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	45	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	5	9	4	7	16	13	8	6	7	12	6	5	6	3	..
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3	5	7	10	8	23	12	11	20	11	5	8	3	1	2	2
1	..	1	1	..	..	1	..	..	..	1	1	1	..	..	..
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..	..	..	1	..	..	1	..	1	..	..	..	..	..	..	..
1	3	16	38	58	45	49	46	31	20	13	5	1	..	8	1
..	2	2	2	3	6	11	5	4	5	4	2	1	..	..	..
5	4	2	3	2	4	7	3	3	4	1	..	..	1	3	..
..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..
..	4	2	..	1	4	1	..	..	1	2	1	..	..	..	..
..	1	1	..	1	2	..	2	..	..	..	..	..	..	..	..
19	23	25	17	14	9	9	6	9	2	1	1	..	..	2	..
9	10	9	18	9	10	8	15	6	5	7	4	..	..	6	..
23	59	80	127	150	170	178	184	188	163	128	60	34	18	27	5
1	..	1	5	2	1	3	2	1	2	4	1	1	1	..	..
..	1	1	1	..	2	1	1	2	1	1	3	1	..	..	..
..	..	..	1	..	..	3	1	2	4	4	5	4	1	..	..
..	..	2	2	4	1	4	3	1	2	1	..	..	..	..	..
..	1	1	1	1	1	..	2	8	7	8	7	5	1	..	..
..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
131. Ovarian cysts and tumors	19	..	..	..	..	..	..	..	..	..	..
132. Other diseases of female genital organs	80	..	..	..	..	..	..	..	..	..	..
133. Diseases of breast (not puerperal, nor cancer)	1	..	..	..	..	..	..	..	..	..	..
VII.—Puerperal Diseases.											
134. Accidents of pregnancy	100	..	..	..	..	..	..	..	..	..	..
135. Puerperal hæmorrhage	28	..	..	..	..	..	..	..	..	..	..
136. Other accidents of labor	71	..	..	..	..	..	..	..	..	..	..
137. Puerperal septicæmia.	132	..	..	..	..	..	..	..	..	..	..
138. Puerperal albuminuria and convulsions	65	..	..	..	..	..	..	..	..	..	..
139. Puerperal phlegmasia alba dolens	2	..	..	..	..	..	..	..	..	..	..
140. Other accidents of parturition, sudden death	..	..	..	..	..	..	..	..	..	..	..
141. Puerperal diseases of breast	..	..	..	..	..	..	..	..	..	..	..
VIII.—Diseases of Skin and Cellular Tissue.											
142. Gangrene	47	19	..	..	..	..	..	..	..	..	..
143. Carbuncle	15	11	1	..	..	..	..	1	..	..	..
144. Plegmon, acute abcess	75	48	14	..	..	..	..	14	1	2	3
145. Other diseases of skin and adnexa	31	14	9	2	..	..	..	11	..	..	..
IX.—Diseases of Locomotory System.											
146. Diseases of bones (non-tuberculous)	48	36	10	6	1	..	1	18	..	2	3
147. Arthritis, other diseases of joints (except tuberculosis and rheumatism)	10	6	1	..	..	..	..	1	..	1	..
148. Amputation	..	..	..	..	..	..	..	..	..	..	..
149. Other diseases of organs of locomotion	..	..	..	..	..	..	..	..	..	..	..
X.—Malformations.											
150. Congenital malformations	302	182	166	5	4	5	..	180	1	..	..
XI.—Diseases of Infancy.											
151. Congenital debility, icterus and sclerema	2,250	1,223	1,220	2	1	..	..	1,223	..	..	..
151a. Injury during birth	139	82	82	..	..	..	..	82	..	..	..
152. Other diseases peculiar to infancy	17	13	13	..	..	..	..	13	..	..	..
153. Neglect	1	1	1	..	..	..	..	1	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	..	..	..	1	..	1	2	3	3	2	5	1	..	..
..	..	1	1	..	..	2	2	1	1	1	1	..	..	..	..
1	2	5	6	2	5	2	2	2	..	..	1	..	..	3	..
..	..	..	..	..	1	..	..	1	..	..	..	1	..	..	..
1	1	4	1	2	1	..	1	1	..	1	..	..	..	3	..
..	1	..	..	1	1	..	1	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	50	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
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Cause of Death.	Total Both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
XII.—Diseases of Old Age.											
154. Senile debility.....	328	100	..	..	..	..	..	..	..	..	..
XIII.—External Causes.											
155. Suicide by poison.....	71	45	..	..	..	..	..	..	..	..	..
156. Suicide by asphyxia..	120	86	..	..	..	..	..	..	..	..	..
157. Suicide by hanging or strangulation...	30	26	..	..	..	..	..	..	..	..	..
158. Suicide by drowning..	5	3	..	..	..	..	..	..	..	..	..
159. Suicide by firearms...	107	99	..	..	..	..	..	..	..	1	4
160. Suicide by cutting instruments.....	22	19	..	..	..	..	..	..	..	..	..
161. Suicide by precipitation from height...	29	18	..	..	..	..	..	..	..	..	..
162. Suicide by crushing...	1	1	..	..	..	..	..	..	..	..	..
163. Suicide by other methods.....	..	..	..	..	..	..	..	..	..	..	..
164. Fractures.....	76	57	..	..	..	..	..	..	1	..	2
165. Dislocations.....	..	..	..	..	..	..	..	..	..	..	..
166. Other accidental injuries	1,213	1,005	6	11	15	17	28	77	100	45	56
167. Burn, by fire scald.....	174	78	7	12	12	13	5	49	8	2	..
168. Burning by corrosive substances	..	..	..	..	..	..	..	..	..	..	..
169. Sunstroke.....	70	38	6	1	..	1	..	8	..	..	..
170. Freezing	1	1	..	..	..	..	..	..	..	..	..
171. Electrical shock.....	8	8	..	..	..	..	..	..	..	..	..
172. Accidental drowning..	219	205	1	1	..	..	..	2	16	12	15
173. Inanition (starvation)	2	..	..	..	..	..	..	..	..	..	..
174. Inhalation of noxious gas, not suicidal.....	155	108	5	..	..	..	..	5	..	..	2
175. Other acute poisoning	48	25	1	..	3	2	1	7	2	..	..
176. Other external violence	218	134	13	2	1	..	..	16	2	..	5
(Of which)											
a. Homicide, by blows	26	20	..	..	..	..	..	..	..	..	1
b. Homicide, by sharp instruments.....	27	24	..	..	..	..	..	..	1	..	1
c. Homicide, by gunshot.....	78	55	..	..	..	..	..	..	..	..	3
d. Homicide, by poison	2	2	..	..	..	..	..	..	..	..	..
e. Homicide, by other methods.	9	2	1	..	..	..	..	1	..	..	..
XIV.—Ill-defined or Not Specified Causes.											
177. Dropsy.....	..	..	..	..	..	..	..	..	..	..	..
178. Sudden death, not puerperal.....	..	..	..	..	..	..	..	..	..	..	..
179. Ill-defined causes.....	548	283	249	26	2	4	..	281	..	..	1



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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
..	..	..	..	..	..	..	3	6	10	18	18	27	18	..	..
2	5	10	6	8	6	2	2	2	2	..	..	..	..	1	1
8	9	4	11	11	13	6	12	6	4	2	..	..	..	..	..
1	2	5	7	4	1	2	1	1	1	..	..	1	..	..	1
1	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..
14	11	11	11	7	9	10	8	8	1	2	2	..	..	..	..
..	..	3	2	3	4	3	1	2	..	..	..	1	..	..	1
2	2	2	5	1	3	..	..	1	2	..	..	..	..	2	1
..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	3	4	8	12	3	7	3	2	4	1	1	1	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
80	99	119	100	87	61	53	34	39	29	18	4	3	1	29	..
2	4	5	..	1	1	2	3	..	..	..	..	..	1	3	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	2	5	5	5	6	5	..	1	..	..	..	..	..	1	..
..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
..	1	3	1	2	..	1	..	..	..	..	..	..	..	..	..
12	23	22	19	26	15	14	19	4	4	1	..	..	1	3	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17	10	10	13	11	6	9	8	3	4	5	4	1	..	6	..
..	4	1	3	1	2	3	..	2	..	..	..	..	..	1	..
23	18	20	13	11	10	6	3	3	2	2	..	..	..	10	2
4	2	2	1	3	4	..	2	1	..	..	..	..	..	..	..
7	4	5	1	3	1	1	..	..	..	..	..	..	..	2	..
13	11	8	8	4	4	2	1	1	..	..	..	..	..	4	2
..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	1	..	..	..	..	..	..	..	..	..	..	11	..

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Cause of Death.	Total Both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
I.—General diseases...	10,486	5,988	401	356	211	115	63	1,146	170	70	160
a. Tuberculous diseases	5,160	3,272	111	80	54	28	13	286	56	25	112
b. Cancer	1,630	677	2	1	..	..	..	3	4	4	5
II.—Diseases of nervous system and organs of sense	3,180	1,743	331	74	44	21	19	489	87	36	42
III.—Diseases of circulatory system..	3,740	1,880	46	6	3	5	3	63	24	36	38
IV.—Diseases of respiratory system	7,234	4,030	1,164	606	184	75	35	2,064	74	19	39
V.—Diseases of digestive system....	4,911	2,700	1,390	222	46	22	6	1,686	31	23	34
VI.—Diseases of genito-urinary system	3,502	1,869	20	5	6	8	..	39	11	6	12
VII.—Puerperal diseases.	398	..	..	..	..	..	..	..	..	..	..
VIII.—Diseases of skin and cellular tissue	168	92	24	2	..	..	..	26	1	2	3
IX.—Diseases of locomotory system.	58	42	11	6	1	..	1	19	..	3	3
X.—Malformations.....	302	182	166	5	4	5	..	180	1	..	..
XI.—Diseases of infancy	2,407	1,319	1,316	2	1	..	..	1,319	..	..	..
XII.—Diseases of old age	328	100	..	..	..	..	..	..	..	..	..
XIII.—External causes....	2,569	1,956	39	27	31	33	34	164	129	60	84
a. Suicide.....	385	297	..	..	..	..	..	..	..	1	4
b. Homicide.....	142	103	1	..	..	..	..	1	1	..	5
c. Accident	2,042	1,556	38	27	31	33	34	163	128	59	75
XIV.—Causes ill defined..	548	283	249	26	2	4	..	281	..	..	1
Total males.....		22,184	5,157	1,337	533	288	161	7,476	528	255	416
Total females...		17,647	4,307	1,186	430	225	154	6,302	402	269	383
Total both sexes.		39,831	9,464	2,523	963	513	315	13,778	930	524	799

BOROUGH OF

Deaths of Females by Age, and Cause of Death,

Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
I.—General Diseases.										
1. Typhoid fever	119	..	2	1	..	2	5	7	14	17
2. Typhus fever.....	..	..	..	..	..	..	..	..	..	..
3. Relapsing fever.....	..	..	..	..	..	..	..	..	..	..
4. Malarial fever.....	5	..	..	..	1	..	1	..	..	1
5. Small-pox.....	..	..	..	..	..	..	..	..	..	..
6. Measles	231	70	93	38	13	9	223	5	2	..



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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
331	459	585	632	483	513	408	360	262	197	119	56	25	12	188	43
251	366	447	459	331	325	225	172	105	68	26	12	2	4	144	38
9	13	22	34	53	67	83	111	89	76	61	27	12	4	10	2
51	45	55	73	111	97	124	113	123	118	78	53	29	19	40	3
53	74	100	129	151	161	182	181	202	173	144	88	47	34	60	7
81	133	143	175	200	188	168	162	173	148	111	67	41	44	145	8
35	54	78	83	106	123	111	97	83	53	47	32	14	10	65	3
33	71	94	155	166	185	198	208	208	184	153	80	45	21	33	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	2	6	7	2	7	4	5	6	4	4	4	6	1	3	..
1	2	4	1	3	2	..	2	1	..	1	..	..	..	3	..
1	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	52	..
..	..	..	..	..	..	..	3	6	10	18	18	27	18	..	..
168	193	224	204	190	141	125	94	74	53	32	11	7	3	57	6
28	29	35	42	34	36	25	24	20	10	5	2	2	..	3	4
24	17	16	11	10	9	3	3	3	..	..	..	..	..	6	2
116	147	173	151	146	96	97	67	51	43	27	9	5	3	48	..
..	..	..	1	..	..	..	..	..	..	..	..	..	..	11	..
756	1,033	1,289	1,460	1,412	1,417	1,320	1,225	1,138	940	707	409	241	162	660	75
693	809	835	869	888	810	862	838	955	866	721	518	341	286	591	3
1,449	1,842	2,124	2,329	2,300	2,227	2,182	2,063	2,093	1,806	1,428	927	582	448	1,251	78

MANHATTAN.

for the Year Ending December 31, 1906.

20	25	30	35	40	45	50	55	60	65	70	75	80	85	Colored.	Chinese.
18	17	14	6	4	6	3	1	3	3	..	..	1	..	5	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	1	..	..	..	..	..	..	..	..	..	..	3	..

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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
7. Scarlet fever	78	11	7	10	8	9	45	24	4	..
8 Whooping cough	85	41	22	10	3	5	81	4	..	..
9. Diphtheria and croup	314	42	81	54	45	30	252	48	6	4
10. Influenza	56	..	1	1	..	..	2	..	1	1
11. Miliary fever	..	..	..	..	..	..	..	..	..	..
12. Asiatic cholera	..	..	..	..	..	..	..	..	..	..
13. Cholera nostras	..	..	..	..	..	..	..	..	..	..
14. Dysentery	20	2	..	..	..	..	2	..	..	..
15. Plague	..	..	..	..	..	..	..	..	..	..
16. Yellow fever	..	..	..	..	..	..	..	..	..	..
17. Leprosy	..	..	..	..	..	..	..	..	..	..
18. Erysipelas	91	47	3	1	..	..	51	..	1	2
19. Other epidemic diseases	5	3	1	..	..	..	4	..	..	..
20. Pyæmia, septicæmia	17	9	1	..	..	..	10	..	..	..
21. Glanders	..	..	..	..	..	..	..	..	..	..
22. Malignant pustule	..	..	..	..	..	..	..	..	..	..
23. Hydrophobia	2	..	..	1	..	1	2	..	..	..
24. Actinomycosis	1	..	..	..	..	..	..	..	..	..
24a. Trichinosis	1	..	..	..	..	..	..	..	..	..
25. Pellagra	..	..	..	..	..	..	..	..	..	..
26. Tuberculosis of larynx	8	..	..	..	..	..	..	..	..	2
27. Tuberculosis of lungs	1,563	18	16	10	6	2	52	17	34	130
28. Tubercular meningitis	221	52	43	39	13	11	158	23	12	10
29. Abdominal tuberculosis	48	8	1	2	..	1	12	2	..	4
30. Potts' disease	16	..	..	1	1	1	3	2	5	1
31. Cold abscess	2	1	..	..	..	..	1	..	..	..
32. White swelling	10	..	..	..	..	1	1	3	4	..
33. Tuberculosis of other organs	9	..	..	1	..	..	1	1	..	1
34. General tuberculosis	11	2	2	..	1	..	5	..	1	..
35. Scrofula	2	2	..	..	..	..	2	..	..	..
36. Syphilis	79	63	4	..	1	..	68	..	..	..
37. Gonorrhœa (adults)	2	..	..	..	..	..	..	..	..	..
38. Gonorrhœa (children)	3	3	..	..	..	..	3	..	..	..
39. Cancers, etc., of the mouth	9	..	..	..	..	..	..	..	..	..
40. Cancer of stomach, liver	314	..	..	..	..	1	1	..	..	..
41. Cancer of intestines, rectum	144	..	..	..	1	..	1	..	..	1
42. Cancer of female genital organs	244	..	..	..	..	..	..	..	1	2



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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over	Colored.	Chinese.
4	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
2	1	..	..	..	1	..	..	..	..	..	..	..	..	4	..
..	2	3	2	2	8	3	6	5	7	2	6	4	2	5	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	1	2	..	1	1	3	3	1	3	1	1	1	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	3	2	6	2	6	4	..	5	3	2	2	..	..	2	..
..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
1	1	..	..	1	2	..	..	2	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	1	2	1	..	..	..	..	..	..	..	..	..	..	..	..
234	260	215	191	133	97	63	61	41	17	11	6	1	..	111	..
9	5	2	2	..	..	..	..	..	..	..	..	..	..	14	..
4	8	4	4	4	1	..	1	1	1	1	1	..	..	3	1
..	..	3	..	..	..	..	1	1	..	..	..	..	..	1	..
..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..
1	1	2	1	1	..	..	..	..	..	..	..	..	..	1	..
2	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	1	1	3	1	2	2	..	..	..	..	..	..	..	4	..
..	1	1	..	..	..	..	..	..	..	..	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	..	..	1	2	..	1	1	1	..	1	1	..	..	..
1	3	6	8	27	32	54	45	43	42	31	15	3	3	1	..
1	4	4	8	16	21	22	15	22	10	7	6	4	2	2	..
2	4	16	21	32	43	36	30	29	12	7	4	3	2	4	..

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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
43. Cancer of the breast	130	..	..	..	..	..	..	..	..	..
44. Cancer of the skin	15	1	..	..	..	..	1	..	..	1
45. Cancer of other organs and unspecified	97	1	..	1	1	..	3	..	..	2
46. Other tumors (except of female genital organs)	12	..	..	..	..	..	..	..	..	..
47. Acute articular rheumatism	122	..	1	2	..	1	4	18	20	9
48. Chronic rheumatism and gout	47	..	..	..	..	..	..	..	3	1
49. Scurvy	4	..	..	1	..	..	1	1	..	1
50. Diabetes	201	..	..	..	..	..	..	1	1	3
51. Exophthalmic Goitre	21	..	..	..	..	..	..	..	..	3
52. Addison's disease	3	..	..	..	..	..	..	..	..	..
53. Leukæmia	18	1	..	..	..	1	2	2	1	..
54. Anæmia, chlorosis	31	4	1	..	..	..	5	..	..	1
55. Other general diseases	..	..	..	..	..	..	..	..	..	..
56. Alcoholism, acute and chronic.	83	..	..	..	..	..	..	..	..	..
57. Lead poisoning	..	..	..	..	..	..	..	..	..	..
58. Other chronic poisonings of occupation	..	..	..	..	..	..	..	..	..	..
59. Other chronic poisonings	4	..	..	..	..	..	..	..	..	1
II. Diseases of Nervous System and Organs of Sense.										
60. Encephalitis	3	..	..	..	..	..	..	..	..	..
61. Simple meningitis	328	82	62	24	21	9	198	42	28	19
61a (of which) Cerebro-spinal meningitis	241	46	45	18	16	7	132	37	25	18
62. Locomotor ataxia	9	..	..	..	..	..	..	..	..	..
63. Other diseases of spinal cord	23	..	..	..	..	..	..	1	..	..
64. Apoplexy, congestion of brain.	611	5	2	1	..	..	8	..	1	2
65. Softening of brain	13	..	..	..	..	..	..	..	..	..
66. Paralysis unspecified	57	..	2	..	..	..	2	..	..	..
67. General paresis	41	..	..	..	..	..	..	1	..	..
68. Other forms of insanity	12	..	..	..	..	..	..	..	..	..
69. Epilepsy	27	..	1	..	..	1	2	1	2	2
70. Convulsions (not puerperal)	2	..	..	..	..	..	..	2	..	..
71. Convusions of infants	192	156	23	8	3	2	192	..	..	..
72. Tetanus, trismus	13	4	1	1	..	..	6	1	..	..
73. Chorea	1	..	..	..	..	..	..	..	1	..
74. Other nervous diseases	42	..	..	..	1	2	3	3	2	1
75. Diseases of the eye	3	1	1	..	..	..	2	..	..	..
76. Diseases of the ears	60	15	9	4	2	..	30	3	4	2



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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
..	1	5	12	16	17	19	20	15	8	7	2	5	3	2	..
..	..	..	1	..	1	2	2	2	2	1	..	1	1	..	..
3	2	5	6	16	15	10	10	11	5	2	6	..	1	1	..
..	1	2	1	1	2	2	1	..	1	..	..	..	1	..	..
3	9	7	6	6	7	5	4	9	6	3	5	..	1	5	..
..	3	..	1	2	3	..	3	7	5	8	4	4	3	..	..
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
4	6	1	8	2	14	31	23	36	30	22	14	2	3	1	..
..	1	2	2	3	1	2	4	2	1	..	..	..	..	1	..
..	..	1	1	..	1	..	..	..	..	..	..	..	..	..	..
..	2	2	2	1	2	2	..	1	..	1	..	..	..	1	..
2	1	3	2	4	2	4	2	1	1	2	1	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	6	22	17	16	6	6	1	2	1	..	..	..	..	..	..
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9	7	7	2	4	3	3	2	2	1	1	..	..	..	10	..
7	6	7	1	2	2	1	1	1	..	1	..	..	..	9	..
..	..	..	2	..	2	2	1	2	..	..	..	..	..	..	..
1	2	..	1	3	3	3	2	3	3	..	1	..	..	..	..
2	2	11	21	30	43	72	69	78	85	81	60	33	13	29	..
..	..	..	1	1	1	..	1	3	2	1	2	1	..	1	..
..	1	1	..	2	3	5	7	7	6	9	6	6	2	..	..
..	3	4	6	3	6	1	3	3	2	..	..	3	1	3	..
1	1	4	4	..	..	..	..	..	1	1	..	..	..	..	..
3	5	2	3	4	1	..	..	1	..	1	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..
..	1	1	..	..	..	1	2	1	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	6	4	2	6	4	3	..	2	2	1	1	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	2	3	1	2	3	1	1	1	1	..	..	..	..	..	..

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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
III.—Diseases of Circulatory System.										
77. Pericarditis	9	..	1	..	..	..	1	2	1	..
78. Acute endocarditis	50	2	..	1	..	1	4	7	3	3
79. Organic heart diseases	1,596	6	2	2	3	3	16	34	43	41
80. Angina pectoris	27	..	..	..	..	..	..	..	..	..
81. Diseases of arteries, aneurism, etc	93	..	..	..	..	..	..	..	..	..
82. Embolism, thrombosis	41	2	1	..	..	..	3	..	..	..
83. Diseases of veins (hæmorrhoids, varices, phlebitis, etc.)	6	..	..	..	..	..	..	1	..	..
84. Diseases of lymphatics (lymphangitis, etc.)	8	5	2	1	..	..	8	..	..	..
85. Hæmorrhage	30	23	..	..	..	1	24	..	..	2
86. Other diseases of circulatory system	..	..	..	..	..	..	..	..	..	..
IV.—Diseases of Respiratory System.										
87. Diseases of nasal fossae	..	..	..	..	..	..	..	..	..	..
88. Diseases of the larynx	9	3	1	1	1	..	6	1	..	..
89. Diseases of thyroid gland	1	..	..	..	..	..	..	..	..	..
90. Acute bronchitis	336	168	65	14	5	2	254	1	1	3
91. Chronic bronchitis	19	..	..	..	..	..	..	..	1	..
92. Broncho-pneumonia	1,471	651	349	94	36	22	1,152	17	5	4
93. Pneumonia	1,172	111	100	36	15	7	269	26	17	17
94. Pleurisy	67	9	13	7	5	1	35	4	1	..
95. Congestion of lungs, pulmonary apoplexy	42	8	..	..	..	..	8	1	..	1
96. Gangrene of lung	9	..	..	..	..	..	..	..	..	2
97. Asthma	44	..	..	..	..	..	..	..	..	..
98. Pulmonary emphysema	25	..	..	..	..	..	..	..	..	..
99. Other diseases of respiratory system (phthisis excepted)	9	..	..	..	..	..	..	..	..	..
V.—Diseases of Digestive System.										
100. Diseases of mouth and adnexa	2	..	..	1	..	..	1	1	..	..
101. Diseases of pharynx	11	1	1	..	..	..	2	3	..	..
102. Diseases of œsophagus	..	..	..	..	..	..	..	..	..	..
103. Ulcer of stomach	25	..	..	..	..	..	..	..	..	3
104. Other diseases of stomach (cancer excepted)	64	4	..	..	1	1	6	1	..	..
105. Diarrhœa and enteritis (under two years)	1,352	1,144	208	..	..	..	1,352	..	..	..
(of which) chronic diarrhœa	..	..	..	..	..	..	..	..	..	..
106. Diarrhœa and enteritis (two years and over)	181	..	..	24	10	8	42	10	4	1
107. Intestinal parasites	..	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
..	..	1	..	1	2	..	..	..	..	..	1	..	..	1	..
4	3	2	7	2	1	3	2	3	3	..	1	1	1	..	..
69	65	82	95	98	100	145	131	186	164	142	88	52	45	58	1
..	..	1	2	..	1	2	4	3	4	5	4	1	..	..	..
..	1	1	2	3	2	3	6	12	16	16	9	12	10	3	..
..	..	..	5	2	5	2	8	6	3	2	3	2	..	1	..
..	..	..	1	1	..	1	1	1	..	..	..	..	..	..	..
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..	..	1	1	1	3	3	4	11	16	7	11	13	6	5	..
..	..	..	1	..	..	..	2	2	2	2	5	4	..	..	..
9	11	10	12	18	18	16	20	33	47	31	27	23	18	55	1
35	52	59	65	67	63	70	94	90	90	67	42	23	26	42	..
7	5	1	3	4	2	2	1	..	2	..	..	..	..	1	..
..	2	..	1	2	..	..	2	3	2	8	3	4	5	1	..
1	2	..	..	1	..	1	1	1	..	..	..	..	..	2	..
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1	..	1	..	1	1	1	2	2	..	..	..	..	..	1	..
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..	3	1	1	..	..	1	..	..	..	..	..	..	..	..	..
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2	2	4	2	6	1	..	1	2	..	1	..	1	..	1	..
1	1	3	2	4	3	5	4	6	6	5	6	5	6	2	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	26	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	6	5	5	3	5	16	13	12	16	16	7	10	7	1	..
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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
108. Hernia, intestinal obstruction..	160	18	1	..	..	1	20	3	..	..
109. Other diseases of intestines....	2	..	..	..	..	..	..	..	..	..
110. Acute yellow atrophy of liver..	5	..	..	..	1	..	1	..	..	..
111. Hydatid tumor of liver.....	..	..	..	..	..	..	..	..	..	..
112. Cirrhosis of liver.....	176	..	..	..	..	..	..	1	1	..
113. Biliary calculi.....	58	..	..	..	..	..	..	..	..	..
114. Other diseases of liver	29	..	1	..	..	..	1	1	..	..
115. Diseases of spleen.....	1	..	..	..	..	..	..	..	..	..
116. Simple peritonitis (non-puerperal).....	22	2	..	..	..	..	2	4	1	..
117. Other diseases of digestive system (except tuberculosis and cancer).....	6	..	..	..	1	..	1	..	..	..
118. Appendicitis and iliac abscess..	117	..	..	..	..	..	..	10	20	10
VI.—Diseases of Genito-urinary System.										
119. Acute nephritis.....	177	16	10	6	6	1	39	8	6	5
120. Bright's disease.....	1,234	1	..	..	..	..	1	6	4	9
121. Other diseases of kidneys and adnexa.....	23	..	..	..	1	..	1	..	..	..
122. Urinary calculus.....	2	..	..	..	..	..	..	..	..	..
123. Diseases of bladder.....	11	..	..	..	1	..	1	..	..	..
124. Diseases of urethra, urinary abscess, etc	9	..	..	..	..	..	..	..	..	..
125. Diseases of the prostate	..	..	..	..	..	..	..	..	..	..
126. Non-venereal diseases of male genital organs.....	..	..	..	..	..	..	..	..	..	..
127. Metritis.....	..	..	..	..	..	..	..	..	..	..
128. Uterine hæmorrhage (not puerperal)	3	..	..	..	..	..	..	..	..	1
129. Uterine tumor (not cancer)....	58	..	..	..	..	..	..	..	..	..
130. Other diseases of uterus.....	16	..	..	..	..	..	..	..	..	1
131. Ovarian cysts and tumors.....	19	..	..	..	..	..	..	..	..	2
132. Other diseases of female genital organs.....	80	..	..	..	..	..	..	..	..	6
133. Diseases of breast (not puerperal, nor cancer).....	1	..	..	..	..	..	.	..	..	..
VII.—Puerperal Diseases.										
134. Accidents of pregnancy.....	100	..	..	..	..	..	..	..	..	2
135. Puerperal hæmorrhage.....	28	..	..	..	..	..	..	..	..	1
136. Other accidents of labor.....	71	..	..	..	..	..	..	..	..	2
137. Puerperal septicæmia.....	132	..	..	..	..	..	..	..	..	11
138. Puerperal albuminuria and convulsions.....	65	..	..	..	..	..	..	..	..	4
139. Puerperal phlegmasia alba dolens.....	2	..	..	..	..	..	..	..	..	..
140. Other accidents of parturition, sudden death.....	..	..	..	..	..	..	..	..	..	..
141. Puerperal diseases of breast....	..	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
5	10	8	12	15	13	11	12	13	14	13	8	2	1	4	..
..	..	1	1	..	..	..	..	..	..	..	..	..	..	1	..
3	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	9	11	24	33	25	19	13	11	13	6	1	..	5	3	..
1	2	3	7	4	9	8	7	8	2	3	1	1	2	1	..
..	1	..	2	6	4	4	2	3	..	2	..	2	1	1	..
..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	4	4	3	3	..	..	..	1	..	..	..	..	..	..	..
2	1	1	..	..	..	..	..	..	1	..	..	..	..	..	..
13	10	9	12	10	7	5	4	3	1	2	1	..	..	4	..
12	11	9	13	20	11	7	10	10	6	4	4	1	1	11	..
29	53	68	86	119	100	120	127	120	126	107	81	45	33	34	..
3	1	3	2	2	4	1	1	1	1	..	2	1	..	..	..
1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	1	..	1	..	1	1	..	1	..	2	2	1	2	..
2	..	1	2	..	3	1	..	..	..	..	..	..	..	2	..
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..	1	..	1	..	..	..	..	..	..	..	..	..	..	1	..
..	2	8	10	17	10	4	4	1	..	1	..	1	..	4	..
3	4	1	3	3	..	1	..	..	..	..	..	..	..	2	..
4	4	..	2	..	..	3	2	2	..	..	..	..	..	1	..
22	13	15	13	10	1	..	..	..	..	..	..	..	..	9	..
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
19	31	25	16	4	2	1	..	..	..	..	..	..	..	3	..
2	7	7	7	4	..	..	..	..	..	..	..	..	..	1	..
10	15	12	25	6	1	..	..	..	..	..	..	..	..	2	..
33	30	31	16	9	1	1	..	..	..	..	..	..	..	3	..
21	16	14	5	5	..	..	..	..	..	..	..	..	..	1	..
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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
VIII.—Diseases of Skin and Cellular Tissue.										
142. Gangrene	28	..	..	1	1	..	2	..	..	..
143. Carbuncle	4	3	..	..	..	..	3	..	..	..
144. Phlegmon, acute abscess	27	8	..	1	..	..	9	..	1	2
145. Other diseases of skin and adnexa	17	12	1	..	..	..	13	..	..	..
IX.—Diseases of Locomotory System										
146. Diseases of bones (non-tuberculous)	12	5	3	..	..	..	8	..	..	2
147. Arthritis, other diseases of joints (except tuberculosis and rheumatism)	4	1	..	..	..	1	2	..	..	..
148. Amputation	..	..	..	..	..	..	..	..	..	..
149. Other diseases of organs of locomotion	..	..	..	..	..	..	..	..	..	..
X.—Malformations.										
150. Congenital malformations	120	114	5	..	..	..	119	..	..	1
XI.—Diseases of Infancy.										
151. Congenital debility, icterus and sclerema	1,027	1,024	2	..	1	..	1,027	..	..	..
151a. Injury during birth	57	57	..	..	..	..	57	..	..	..
152. Other diseases peculiar to infancy	4	4	..	..	..	..	4	..	..	..
153. Neglect	..	..	..	..	..	..	..	..	..	..
XII.—Diseases of Old Age.										
154. Senile debility	228	..	..	..	..	..	..	..	..	..
XIII.—External Causes.										
155. Suicide by poison	26	..	..	..	..	..	..	..	..	1
156. Suicide by asphyxia	34	..	..	..	..	..	..	..	..	..
157. Suicide by hanging or strangulation	4	..	..	..	..	..	..	..	..	..
158. Suicide by drowning	2	..	..	..	..	..	..	..	..	..
159. Suicide by firearms	8	..	..	..	..	..	..	..	..	..
160. Suicide by cutting instruments	3	..	..	..	..	..	..	..	..	..
161. Suicide by precipitation from height	11	..	..	..	..	..	..	..	..	1
162. Suicide by crushing	..	..	..	..	..	..	..	..	..	..
163. Suicide by other methods	..	..	..	..	..	..	..	..	..	..
164. Fractures	19	..	..	1	..	..	1	1	1	..
165. Dislocations	..	..	..	..	..	..	..	..	..	..
166. Other accidental injuries	208	2	3	12	7	10	34	24	3	9
167. Burn, by fire scald	96	3	8	12	6	4	33	17	5	3
168. Burning by corrosive substances	..	..	..	..	..	..	..	..	..	..
169. Sunstroke	32	6	1	..	..	..	7	1	..	..
170. Freezing	..	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
1	..	..	..	1	..	1	3	7	6	2	1	..	4	..	..
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1	..	1	3	..	3	1	1	1	3	..	..	1	..	..	..
1	..	1	..	..	..	..	1	..	..	..	1	..	..	..	..
..	1	..	..	..	..	1	..	..	..	..	..	..	..	1	..
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..	..	..	..	..	..	..	1	8	22	43	47	43	64	4	..
6	3	5	1	4	2	1	1	2	..	..	..	..	..	..	..
..	2	7	5	6	6	1	3	2	..	1	1	..	..	..	..
3	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	2	2	1	2	..	1	..	..	..	..	..	..	..	..	..
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1	1	1	3	..	2	..	1	..	..	1	..	..	..	..	..
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..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	3	2	..	..	1	4	1	..	5	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	6	12	15	12	11	11	10	19	12	12	6	4	5	5	..
3	5	5	2	2	5	4	2	..	3	3	1	3	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	3	..	..	2	1	1	1	3	3	2	2	2	2	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
171. Electrical shock	..	..	..	..	..	..	..	..	..	..
172. Accidental drowning	14	..	..	..	..	..	..	..	2	..
173. Inanition (starvation)	2	..	..	..	..	..	..	..	..	..
174. Inhalation of noxious gas, not suicidal	47	..	1	1	..	1	3	4	..	4
175. Other acute poisoning	23	1	..	..	1	1	3	..	1	1
176. Other external violence	84	16	1	1	1	..	19	..	..	4
(of which) a. Homicide by blows	6	2	..	..	1	..	3	..	..	..
b. Homicide by sharp instruments	3	1	..	..	..	..	1	..	..	..
c. Homicide by gunshot	23	..	..	..	..	..	..	..	..	1
d. Homicide by poison	..	..	..	..	..	..	..	..	..	..
e. Homicide, by other methods	7	3	..	..	..	..	3	..	..	..
XIV.—Ill-defined or not Specified Causes.										
177. Dropsy	..	..	..	..	..	..	..	..	..	..
178. Sudden death, not puerperal	..	..	..	..	..	..	..	..	..	..
179. Ill-defined causes	265	233	26	3	1	..	263	1	..	..
I.—General diseases	4,498	381	279	173	94	75	1,002	158	110	198
a. Tuberculous diseases	1,888	81	62	53	21	16	233	48	56	148
b. Cancer	953	2	..	1	2	1	6	..	1	6
II.—Diseases of nervous system and organs of sense	1,437	263	101	38	27	14	443	54	38	26
III.—Diseases of circulatory system	1,860	38	6	4	3	5	56	44	47	46
IV.—Diseases of respiratory system	3,204	950	528	152	62	32	,1724	50	25	27
V.—Diseases of digestive system	2,211	1,169	211	25	13	10	1,428	34	26	14
VI.—Diseases of genito-urinary system	1,633	17	10	6	8	1	42	14	10	24
VII.—Puerperal diseases	398	..	..	..	..	..	..	..	..	20
VIII.—Diseases of skin and cellular tissue	76	23	1	2	1	..	27	..	1	2
IX.—Diseases of locomotory system	16	6	3	..	..	1	10	..	..	2
X.—Malformations	120	114	5	..	..	..	119	..	..	1
XI.—Diseases of infancy	1,088	1,085	2	..	1	..	1,088	..	..	..
XII.—Diseases of old age	228	..	..	..	..	..	..	..	..	..
XIII.—External causes	613	28	14	27	15	16	100	47	12	23
a. Suicide	88	..	..	..	..	..	..	..	..	2
b. Homicide	39	6	..	..	1	..	7	..	..	1
c. Accident	486	22	14	27	14	16	93	47	12	20
XIV.—Causes ill-defined	265	233	26	3	1	..	263	1	..	..
Total—Females	17,647	4,307	1,186	430	225	154	6,302	402	269	383

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	4	4	..	2	1	1	..	..	..	..	..	..	..	..	..
..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..
2	6	2	1	6	4	6	1	4	2	..	1	1	..	3	..
4	5	4	2	1	..	1	..	..	1	..	..	..	..	..	..
17	7	14	6	5	3	1	4	2	..	2	..	..	..	7	..
..	..	..	1	1	..	..	..	1	..	..	..	..	..	..	..
..	..	1	..	1	..	..	..	..	..	..	..	..	..	1	..
6	5	6	2	1	1	..	1	..	..	..	..	..	..	4	..
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1	1	..	..	..	1	..	1	..	..	..	..	..	..	..	..
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..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	1	..	..	..	..	..	..	..	12	..
304	348	330	316	292	295	272	235	242	158	110	75	30	23	175	1
252	277	229	200	138	98	64	64	43	18	12	7	1	..	130	1
8	14	36	56	108	131	143	123	123	80	55	34	17	12	10	..
24	30	37	45	61	69	91	88	104	103	95	70	43	16	48	..
73	69	88	113	107	113	156	152	211	190	165	106	68	56	63	1
53	74	74	84	97	93	99	132	155	171	124	94	69	59	107	1
34	50	50	71	84	67	69	56	60	53	48	24	21	22	44	..
76	90	107	132	172	129	138	145	134	134	112	89	50	35	66	..
85	101	89	69	28	4	2	..	..	..	..	..	..	..	10	..
3	..	2	3	1	3	2	5	8	10	2	2	1	4	..	..
..	1	1	..	..	..	1	..	..	..	..	..	1	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	45	..
..	..	..	..	..	..	..	1	8	22	43	47	43	64	4	..
41	46	57	36	46	37	31	24	33	25	22	11	15	7	16	..
10	10	16	10	12	10	5	6	4	..	2	1	..	..	..	..
7	6	7	3	3	2	..	2	1	..	..	..	..	..	5	..
24	30	34	23	31	25	26	16	28	25	20	10	15	7	11	..
..	..	..	..	..	..	1	..	..	..	..	..	..	..	12	..
693	809	835	869	888	810	862	838	955	866	721	518	341	286	588	3

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Deaths of Males by Age, and Cause of Death,

Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
I.—General Diseases.											
1. Typhoid fever	44	21	..	..	1	..	..	1	1	..	..
2. Typhus fever	..	..	..	..	..	..	..	..	..	..	..
3. Relapsing fever	..	..	..	..	..	..	..	..	..	..	..
4. Malarial fever	1	1	1	..	..	..	..	1	..	..	..
5. Small-pox	..	..	..	..	..	..	..	..	..	..	..
6. Measles	199	94	20	32	21	8	2	83	4	..	2
7. Scarlet fever	45	21	..	2	2	2	..	6	9	2	3
8. Whooping cough	34	12	4	3	3	1	..	11	1	..	..
9. Diphtheria and croup	252	142	11	40	32	16	12	111	21	5	1
10. Influenza	16	8	..	1	..	1	..	2	..	..	..
11. Miliary fever	..	..	..	..	..	..	..	..	..	..	..
12. Asiatic cholera	..	..	..	..	..	..	..	..	..	..	..
13. Cholera nostras	..	..	..	..	..	..	..	..	..	..	..
14. Dysentery	18	9	4	..	2	..	..	6	..	..	..
15. Plague	..	..	..	..	..	..	..	..	..	..	..
16. Yellow fever	..	..	..	..	..	..	..	..	..	..	..
17. Leprosy	..	..	..	..	..	..	..	..	..	..	..
18. Erysipelas	12	2	..	..	..	..	..	..	..	..	..
19. Other epidemic diseases	..	..	..	..	..	..	..	..	..	..	..
20. Pyæmia, septicæmia	4	3	1	1	..	..	..	2	..	..	..
21. Glanders	..	..	..	..	..	..	..	..	..	..	..
22. Malignant pustule	..	..	..	..	..	..	..	..	..	..	..
23. Hydrophobia	3	2	..	..	..	..	..	..	1	..	1
24. Actinomycosis	..	..	..	..	..	..	..	..	..	..	..
24a. Trichinosis	..	..	..	..	..	..	..	..	..	..	..
25. Pellagra	..	..	..	..	..	..	..	..	..	..	..
26. Tuberculosis of larynx	5	4	..	..	..	..	..	..	..	..	..
27. Tuberculosis of lungs	1,450	927	2	3	1	1	1	8	1	9	42
28. Tubercular meningitis	58	33	3	8	3	6	5	25	1	3	1
29. Abdominal tuberculosis	13	7	1	1	..	..	1	3	1	..	..
30. Pott's disease	3	2	..	..	..	..	..	..	..	1	1
31. Cold abscess	..	..	..	..	..	..	..	..	..	..	..
32. White swelling	4	2	..	..	..	..	..	..	1	1	..
33. Tuberculosis of other organs	..	..	..	..	..	..	..	..	..	..	..

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THE BRONX.

for the Year Ending December 31, 1906.

20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
6	4	2	3	2	..	1	..	1	..	..	..	..	..	..	..
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2	1	1	1	..	..	..	..	..	..	..	..	..	..	2	..
..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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..	..	1	..	1	..	..	..	1	..	..	1	..	..	..	..
73	122	168	163	116	91	65	35	18	10	5	1	..	..	29	..
..	1	..	2	..	..	..	..	..	..	..	..	..	..	1	..
..	2	..	..	..	..	1	..	..	..	..	..	..	..	2	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
34. General tuberculosis...	3	2	..	..	..	..	..	..	..	..	..
35. Scrofula	..	..	..	..	..	..	..	..	..	..	..
36. Syphilis.....	18	11	4	..	..	..	..	4	..	..	..
37. Gonorrhœa (adults)...	..	..	..	..	..	..	..	..	..	..	..
38. Gonorrhœa (children) .	..	..	..	..	..	..	..	..	..	..	..
39. Cancer, etc., of the mouth.....	9	7	..	..	..	..	..	..	..	..	..
40. Cancer of stomach, liver	93	44	..	..	..	..	..	..	..	..	..
41. Cancer of intestines, rectum	35	16	..	..	1	..	..	1	1	..	..
42. Cancer of female genital organs.....	31	..	..	..	..	..	..	..	..	..	..
43. Cancer of the breast...	26	..	..	..	..	..	..	..	..	..	..
44. Cancer of the skin.....	..	..	..	..	..	..	..	..	..	..	..
45. Cancer of other organs and unspecified.....	32	22	..	..	..	..	..	..	..	..	..
46. Other tumors (except of female genital organs).....	3	..	.	..	..	..	..	..	..	..	..
47. Acute articular rheumatism	26	16	1	..	..	..	..	1	4	1	..
48. Chronic rheumatism and gout.....	20	4	..	..	..	..	..	..	..	..	..
49. Scurvy.....	..	..	..	..	..	..	..	..	..	..	..
50. Diabetes.....	39	13	..	..	..	..	..	..	..	..	..
51. Exophthalmic goitre..	1	..	..	..	..	..	..	..	..	..	..
52. Addison's disease.....	1	..	..	..	..	..	..	..	..	..	..
53. Leukæmia.....	9	6	..	..	..	..	..	..	..	..	..
54. Anæmia, chlorosis.....	9	2	..	..	..	..	..	..	..	..	..
55. Other general diseases.	..	..	..	..	..	..	..	..	..	..	..
56. Alcoholism, acute and chronic.....	33	29	..	..	..	..	..	..	..	..	..
57. Lead poisoning	..	..	..	..	..	..	..	..	..	..	..
58. Other chronic poisonings of occupation	..	..	..	..	..	..	..	..	..	..	..
59. Other chronic poisonings.....	..	..	..	..	..	..	..	..	..	..	..
II.—Diseases of Nervous System and Organs of Sense.											
60. Encephalitis	1	..	..	..	..	..	..	..	..	..	..
61. Simple meningitis.....	94	52	14	7	..	3	7	31	3	3	5
61a. (of which) Cerebro-spinal meningitis .	55	31	9	3	..	2	4	18	2	2	3
62. Locomotor ataxia.....	19	13	..	..	..	..	..	..	..	..	..
63. Other diseases of spinal chord	24	10	..	..	..	..	..	..	..	..	..
64. Apoplexy, congestion of brain.....	186	77	..	..	..	..	..	..	..	..	1
65. Softening of brain.....	7	4	..	..	..	..	..	..	..	..	..
66. Paralysis unspecified..	19	4	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	2	..	1	2	1	1	..	..	..	..	..	..	..	1	..
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..	..	..	..	2	..	..	..	4	1	..	..	..	..	..	..
..	..	..	1	5	4	5	7	8	5	3	5	1	..	..	..
..	..	1	..	..	2	1	2	4	2	1	1	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	..	..	2	2	2	3	3	4	3	1	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	1	2	2	..	..	..	2	..	1	1	..	..	..	..
..	..	1	1	..	..	..	1	1	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	..	..	1	1	2	2	4	1	1	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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..	..	1	..	2	..	2	..	1	..	..	..	..	..	..	..
..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	1	2	7	5	6	2	3	1	..	..	..	..	..	..	..
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..	..	..	..	..	..	..	..	1	1	..	..	..	..	3	..
5	1	..	..	2	..	..	..	..	..	..	..	..	..	1	..
5	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
..	..	..	2	..	3	3	1	1	1	1	1	..	..	..	..
..	1	1	..	..	1	1	2	..	3	..	1	..	..	..	..
..	..	1	1	3	4	5	15	12	22	6	4	3	..	2	..
..	..	..	..	..	..	..	1	..	2	..	..	1	..	..	..
..	..	..	..	..	..	..	..	1	3	..	..	..	..	1	..

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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
67. General paresis	4	1	..	..	..	..	..	..	..	..	..
68. Other forms of insanity	..	..	..	..	..	..	..	..	..	..	..
69. Epilepsy	13	5	..	..	..	..	..	..	2	..	..
70. Convulsions (not puerperal)	..	..	..	..	..	..	..	..	..	..	..
71. Convulsions of infants	42	23	21	1	1	..	..	23	..	..	..
72. Tetanus, trismus	11	6	1	..	..	..	..	1	1	..	..
73. Chorea	..	..	..	..	..	..	..	..	..	..	..
74. Other nervous diseases	8	5	..	..	..	..	..	..	..	1	..
75. Diseases of the eyes	..	..	..	..	..	..	..	..	..	..	..
76. Diseases of the ears	4	2	..	..	..	1	..	1	..	1	..
III.—Diseases of Circulatory System.											
77. Pericarditis	2	1	..	..	..	..	..	..	..	..	..
78. Acute endocarditis	27	12	..	..	..	1	..	1	..	..	..
79. Organic heart diseases	395	203	..	1	..	..	..	1	3	5	5
80. Angina pectoris	8	6	..	..	..	..	..	..	..	..	..
81. Diseases of arteries, aneurism, etc	27	17	..	..	..	..	..	..	..	..	..
82. Embolism, thrombosis	19	7	..	..	..	..	..	..	..	..	..
83. Diseases of veins, (hæmorrhoids, varices, phlebitis, etc.)	2	1	..	..	..	..	..	..	..	..	..
84. Diseases of lymphatics (lymphangitis, etc.)	..	..	..	..	..	..	..	..	..	..	..
85. Hæmorrhage	3	1	..	..	..	..	..	..	..	..	..
86. Other diseases of circulatory system	..	..	..	..	..	..	..	..	..	..	..
IV.—Diseases of Respiratory System.											
87. Diseases of the nasal fossæ	..	..	..	..	..	..	..	..	..	..	..
88. Diseases of the larynx	7	5	1	2	..	..	..	3	1	..	..
89. Diseases of thyroid gland	..	..	..	..	..	..	..	..	..	..	..
90. Acute bronchitis	78	40	25	5	..	..	..	30	1	..	..
91. Chronic bronchitis	18	8	..	..	..	..	..	..	..	..	..
92. Broncho-pneumonia	238	110	46	26	5	2	..	79	1	1	..
93. Pneumonia	453	247	20	22	5	1	2	50	5	2	4
94. Pleurisy	22	11	1	..	1	..	..	2	..	..	1
95. Congestion of lungs, pulmonary apoplexy	9	5	1	..	..	..	..	1	..	..	..
96. Gangrene of lung	1	..	..	..	..	..	..	..	..	..	..
97. Asthma	8	3	..	..	..	..	..	..	..	..	..
98. Pulmonary emphysema	7	3	..	..	..	..	..	..	..	..	..
99. Other diseases of respiratory system (phthisis excepted)	10	5	..	1	..	..	..	1	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
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4	5	4	13	19	13	17	26	23	19	19	17	8	2	6	..
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8	13	14	18	20	23	16	22	18	11	9	8	2	4	5	..
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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
V.—Diseases of Digestive System.											
100. Diseases of mouth and adnexa	2	..	..	..	..	..	..	..	..	..	..
101. Diseases of pharynx	1	1	..	..	..	..	..	..	..	..	..
102. Diseases of œsophagus	1	1	..	..	..	..	..	..	..	..	..
103. Ulcer of stomach	5	4	..	..	..	..	..	..	..	..	..
104. Other diseases of stomach (cancer excepted)	33	14	3	2	1	1	..	7	..	1	..
105. Diarrhœa and enteritis (under two years)	332	174	152	22	..	..	..	174	..	..	..
(of which) chronic diarrhœa	..	..	..	..	..	..	..	..	..	..	..
106. Diarrhœa and enteritis (two years and over)	52	25	..	..	9	2	1	12	..	..	..
107. Intestinal parasites	..	..	..	..	..	..	..	..	..	..	..
108. Hernia, intestinal obstruction	41	22	9	..	..	..	..	9	3	2	..
109. Other diseases of intestines	4	2	..	..	..	..	..	..	..	..	..
110. Acute yellow atrophy of liver	..	..	..	..	..	..	..	..	..	..	..
111. Hydatid tumor of liver	..	..	..	..	..	..	..	..	..	..	..
112. Cirrhosis of liver	69	47	..	..	..	..	..	..	..	..	..
113. Biliary calculi	2	..	..	..	..	..	..	..	..	..	..
114. Other diseases of liver	10	6	..	..	..	1	..	1	..	..	..
115. Diseases of spleen	..	..	..	..	..	..	..	..	..	..	..
116. Simple peritonitis (non-puerperal)	18	8	..	..	..	..	..	..	1	1	..
117. Other diseases of digestive system (except tuberculosis and cancer)	..	..	..	..	..	..	..	..	..	..	..
118. Appendicitis and iliac abscess	22	15	..	..	..	1	..	1	1	3	..
VI.—Diseases of Genito-urinary System.											
119. Acute nephritis	50	31	3	..	1	..	..	4	1	1	..
120. Bright's disease	421	234	..	..	..	..	..	..	2	1	3
121. Other diseases of kidneys and adnexa	2	1	1	..	..	..	..	1	..	..	..
122. Urinary calculus	2	..	..	..	..	..	..	..	..	..	..
123. Diseases of bladder	7	5	..	..	..	..	..	..	..	..	..
124. Diseases of urethra, urinary abscess, etc.	1	1	..	..	..	..	..	..	..	..	..
125. Diseases of the prostate	4	4	..	..	..	..	..	..	..	..	..
126. Non-venereal diseases of male genital organs	..	..	..	..	..	..	..	..	..	..	..
127. Metritis	2	..	..	..	..	..	..	..	..	..	..
128. Uterine hæmorrhage (not puerperal)	..	..	..	..	..	..	..	..	..	..	..
129. Uterine tumor (not cancer)	5	..	..	..	..	..	..	..	..	..	..
130. Other diseases of uterus	3	..	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
131. Ovarian cysts and tumors	2	..	..	..	..	..	..	..	..	..	..
132. Other diseases of female genital organs	4	..	..	..	..	..	..	..	..	..	..
133. Diseases of breast (not puerperal or cancer)	1	..	..	..	..	..	..	..	..	..	..
VII.—Puerperal Diseases.											
134. Accidents of pregnancy	12	..	..	..	..	..	..	..	..	..	..
135. Puerperal hæmorrhage	2	..	..	..	..	..	..	..	..	..	..
136. Other accidents of labor	4	..	..	..	..	..	..	..	..	..	..
137. Puerperal septicæmia	25	..	..	..	..	..	..	..	..	..	..
138. Puerperal albuminuria and convulsions	12	..	..	..	..	..	..	..	..	..	..
139. Puerperal phlegmasia alba dolens	..	..	..	..	..	..	..	..	..	..	..
140. Other accidents of parturition, sudden death	5	..	..	..	..	..	..	..	..	..	..
141. Puerperal diseases of breast	..	..	..	..	..	..	..	..	..	..	..
VIII.—Diseases of Skin and Cellular Tissue.											
142. Gangrene	11	3	..	..	..	..	..	..	..	..	..
143. Carbuncle	2	1	..	..	..	..	..	..	..	..	..
144. Phlegmon, acute abscess	2	1	..	..	..	..	..	..	..	..	..
145. Other diseases of skin and adnexa	5	1	1	..	..	..	..	1	..	..	..
IX.—Diseases of Locomotory System.											
146. Diseases of bones (non-tuberculous	12	8	..	1	2		..	3	..	..	2
147. Arthritis, other diseases of joints (except tuberculosis and rheumatism)	..	..	..	..	..	..	..	..	..	..	..
148. Amputation	..	..	..	..	..	..	..	..	..	..	..
149. Other diseases of organs of locomotion	..	..	..	..	..	..	..	..	..	..	..
X.—Malformations.											
150. Congenital malformations	34	22	21	1	..	..	..	22	..	..	..
XI.—Diseases of Infancy.											
151. Congenital debility, icterus and sclerema	234	128	128	..	..	..	..	128	..	..	..
151a. Injury during birth	7	5	5	..	..	..	..	5	..	..	..
152. Other diseases peculiar to infancy	5	1	1	..	..	..	..	1	..	..	..
153. Neglect	..	..	..	..	..	..	..	..	..	..	..
XII.—Diseases of Old Age.											
154. Senile debility	60	24	..	..	..	..	..	..	..	..	..



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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
XIII.—External Causes.											
155. Suicide by poison.....	11	6	..	..	..	..	..	..	..	..	1
156. Suicide by asphyxia ..	16	10	..	..	..	..	..	..	..	..	..
157. Suicide by hanging or strangulation ..	4	3	..	..	..	..	..	..	..	..	..
158. Suicide by drowning..	4	3	..	..	..	..	..	..	..	..	..
159. Suicide by firearms ...	13	12	..	..	..	..	..	..	..	..	..
160. Suicide by cutting instruments	3	2	..	..	..	..	..	..	..	..	..
161. Suicide by precipitation from height..	6	3	..	..	..	..	..	..	..	..	..
162. Suicide by crushing...	..	..	..	..	..	..	..	..	..	..	..
163. Suicide by other methods.....	..	..	..	..	..	..	..	..	..	..	..
164. Fractures.....	2	2	..	..	..	..	..	..	..	..	1
165. Dislocations.....	..	..	..	..	..	..	..	..	..	..	..
166. Other accidental injuries.....	205	179	..	1	..	..	2	3	8	5	12
167. Burn, by fire, scald...	23	8	..	3	3	2	..	8	..	..	..
168. Burning by corrosive substances	..	..	..	..	..	..	..	..	..	..	..
169. Sunstroke.....	5	4	2	1	..	..	..	3	..	..	..
170. Freezing.....	2	2	..	..	..	..	..	..	..	..	1
171. Electrical shock.....	3	3	..	..	..	..	..	..	..	..	..
172. Accidental drowning..	43	40	1	..	1	..	..	2	3	5	7
173. Inanition (starvation)	..	..	..	..	..	..	..	..	..	..	..
174. Inhalation of noxious gas, not suicidal.....	16	10	..	..	..	1	..	1	..	..	1
175. Other acute poisoning	7	2	..	1	1	..	..	2	..	..	..
176. Other external violence	23	15	3	..	..	..	..	3	..	..	1
(Of which)											
a. Homicide, by blows.	4	2	..	..	..	..	..	..	..	..	..
b. Homicide, by sharp instruments	4	2	..	..	..	..	..	..	..	..	..
c. Homicide, by gunshot	6	5	..	..	..	..	..	..	..	..	1
d. Homicide, by poisoning.....	..	..	..	..	..	..	..	..	..	..	..
e. Homicide, by other methods.....	2	..	..	..	..	..	..	..	..	..	..
XIV.—Ill-defined or Not Specified Causes.											
177. Dropsy.....	..	..	..	..	..	..	..	..	..	..	..
178. Sudden death, not puerperal.....	..	..	..	..	..	..	..	..	..	..	..
179. Ill-defined causes.....	48	24	21	3	..	..	..	24	..	..	..



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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
2	..	..	1	..	..	..	1	..	1	..	..	..	..	..	..
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2	3	1	1	1	1	..	..	2	..	..	..	..	..	1	..
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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
I.—General Diseases..	2,549	1,462	52	91	66	35	21	265	46	22	51
a. Tuberculous diseases	1,536	977	6	12	4	7	7	36	4	14	44
b. Cancer	226	89	..	..	1	..	..	1	1	..	..
II.—Diseases of nervous system and organs of sense	432	202	36	8	1	4	7	56	6	5	6
III.—Diseases of circulatory system..	483	248	..	1	..	1	..	2	3	5	5
IV.—Diseases of respiratory system...	851	437	94	56	11	3	2	166	8	3	5
V.—Diseases of digestive system....	592	319	164	24	10	5	1	204	5	7	..
VI.—Diseases of genito-urinary system	504	276	4	..	1	..	..	5	3	2	3
VII.—Puerperal diseases.	60	..	..	..	..	..	..	..	..	..	..
VIII.—Diseases of skin and cellular tissue.....	20	6	1	..	..	..	..	1	..	..	..
IX.—Diseases of locomotory system.	12	8	..	1	2	..	..	3	..	..	2
X.—Malformations.....	34	22	21	1	..	..	..	22	..	..	..
XI.—Diseases of infancy	246	134	134	..	..	..	..	134	..	..	..
XII.—Diseases of old age	60	24	..	..	..	..	..	..	..	..	..
XIII.—External causes....	386	304	6	6	5	3	2	22	11	10	24
a. Suicide	57	39	..	..	..	..	..	..	..	..	1
b. Homicide.....	16	9	..	..	..	..	..	..	..	..	1
c. Accident.....	313	256	6	6	5	3	2	22	11	10	22
XIV.—Causes ill-defined..	48	24	21	3	..	..	..	24	..	..	..
Total males.....	..	3,466	533	191	96	51	33	904	82	54	96
Total females...	..	2,811	496	187	88	56	25	852	57	39	67
Total both sexes	..	6,277	1,029	378	184	107	58	1,756	139	93	163

BOROUGH OF

Deaths of Females by Age, and Cause of Death,

Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
I.—General Diseases.										
1. Typhoid fever.....	23	..	1	..	1	..	2	..	2	3
2. Typhus fever.....	..	..	..	..	..	..	..	..	..	..
3. Relapsing fever.....	..	..	..	..	..	..	..	..	..	..
4. Malarial fever.....	..	..	..	..	..	..	..	..	..	..
5. Small-pox	..	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
87	137	182	183	141	109	83	55	51	23	12	13	1	1	37	..
73	125	171	165	117	91	66	35	19	10	5	2	..	..	32	..
2	..	1	3	9	8	9	12	20	11	5	6	1	..	1	..
9	4	2	4	6	9	10	20	15	32	7	6	5	..	7	..
5	7	5	17	22	17	19	30	26	21	25	23	13	3	7	..
9	16	19	20	26	28	21	24	29	19	18	12	4	10	11	..
3	7	3	16	12	15	10	9	12	8	4	3	1	..	5	..
8	11	8	15	25	20	29	17	31	34	27	23	10	5	15	..
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31	45	27	32	26	26	14	7	16	8	1	2	..	2	4	..
3	6	3	5	1	7	4	2	1	4	1	1	..	..	..	..
2	2	..	1	1	1	..	..	1	..	..	..	..	..	1	..
26	37	24	26	24	18	10	5	14	4	..	1	..	2	3	..
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153	227	247	287	258	225	186	165	181	151	96	87	40	27	93	..
133	182	183	176	140	130	142	126	150	115	124	89	72	34	111	..
286	409	430	463	398	355	328	291	331	266	220	176	112	61	204	..

THE BRONX.

for the Year Ending December 31, 1906.

20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
4	3	4	2	3	..	..	..	..	..	..	..	..	..	..	..
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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
6. Measles	105	28	39	16	10	5	98	6	..	..
7. Scarlet fever	24	..	2	10	5	1	18	4	1	..
8. Whooping cough	22	13	3	4	1	..	21	1	..	..
9. Diphtheria and croup	110	13	38	19	15	8	93	12	..	1
10. Influenza	8	..	..	..	..	..	..	..	..	..
11. Miliary fever	..	..	..	..	..	..	..	..	..	..
12. Asiatic cholera	..	..	..	..	..	..	..	..	..	..
13. Cholera nostras	..	..	..	..	..	..	..	..	..	..
14. Dysentery	9	6	..	..	..	..	6	1	..	..
15. Plague	..	..	..	..	..	..	..	..	..	..
16. Yellow fever	..	..	..	..	..	..	..	..	..	..
17. Leprosy	..	..	..	..	..	..	..	..	..	..
18. Erysipelas	10	4	..	..	..	..	4	..	1	..
19. Other epidemic diseases	..	..	..	..	..	..	..	..	..	..
20. Pyæmia, septicæmia	1	..	..	..	..	..	..	..	..	..
21. Glanders	..	..	..	..	..	..	..	..	..	..
22. Malignant pustule	..	..	..	..	..	..	..	..	..	..
23. Hydrophobia	1	..	..	..	..	..	..	..	1	..
24. Actinomycosis	..	..	..	..	..	..	..	..	..	..
24a. Trichinosis	..	..	..	..	..	..	..	..	..	..
25. Pellagra	..	..	..	..	..	..	..	..	..	..
26. Tuberculosis of larnyx	1	..	..	..	..	..	..	..	..	..
27. Tuberculosis of lungs	523	2	1	..	4	..	7	4	12	40
28. Tubercular meningitis	25	8	5	4	3	1	21	2	..	..
29. Abdominal tuberculosis	6	..	..	..	..	..	..	1	..	..
30. Pott's disease	1	..	..	..	..	..	..	..	..	..
31. Cold abscess	..	..	..	..	..	..	..	..	..	..
32. White swelling	2	..	..	..	..	..	..	..	1	..
33. Tuberculosis of other organs	..	..	..	..	..	..	..	..	..	..
34. General tuberculosis	1	..	..	..	..	..	..	..	..	..
35. Scrofula	..	..	..	..	..	..	..	..	..	..
36. Syphilis	7	4	..	..	..	..	4	..	..	..
37. Gonorrhœa (adults)	..	..	..	..	..	..	..	..	..	..
38. Gonorrhœa (children)	.	..	..	..	..	..	..	..	..	..
39. Cancers, etc., of the mouth	2	..	..	..	..	..	..	..	..	..
40. Cancer of stomach, liver	49	..	..	..	..	..	..	..	..	..
41. Cancer of intestines, rectum	19	..	..	..	..	..	..	..	..	..

Digitized by Google

20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
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82	108	90	70	46	23	18	7	8	3	4	1	..	..	35	..
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1	..	..	..	4	..	4	3	4	1	..	2	..	..	..	..

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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
42. Cancer of female genital organs	31	..	..	..	..	..	..	..	..	..
43. Cancer of the breast	26	..	..	..	..	..	..	..	..	..
44. Cancer of the skin	..	..	..	..	..	..	..	..	..	..
45. Cancer of other organs and unspecified	10	..	..	..	..	..	..	..	1	..
46. Other tumors (except of female genital organs)	3	..	..	..	..	..	..	..	..	..
47. Acute articular rheumatism	10	..	..	1	..	..	1	1	..	..
48. Chronic rheumatism and gout	16	1	..	..	..	..	1	..	..	1
49. Scurvy	..	..	..	..	..	..	..	..	..	..
50. Diabetes	26	..	..	..	..	1	1	..	..	..
51. Exophthalmic goitre	1	..	..	..	..	..	..	..	..	..
52. Addison's disease	1	..	..	..	..	..	..	..	..	..
53. Leukæmia	3	..	..	..	..	..	..	..	1	..
54. Anæmia, chlorosis	7	..	..	..	1	..	1	..	1	..
55. Other general diseases	..	..	..	..	..	..	..	..	..	..
56. Alcoholism, acute and chronic	4	..	..	..	..	..	..	..	..	..
57. Lead poisoning	..	..	..	..	..	..	..	..	..	..
58. Other chronic poisonings of occupation	..	..	..	..	..	..	..	..	..	..
59. Other chronic poisonings	..	..	..	..	..	..	..	..	..	..
II.—Diseases of Nervous System and Organs of Sense.										
60. Encephalitis	1	..	..	..	..	..	..	1	..	..
61. Simple meningitis	42	7	8	4	2	1	22	6	3	2
61a. (of which) Cerebro-spinal Meningitis	24	4	5	4	1	..	14	3	2	2
62. Locomotor ataxia	6	..	..	..	..	..	..	..	..	..
63. Other diseases of spinal cord	14	..	..	..	..	..	..	..	1	..
64. Apoplexy, congestion of brain	109	..	..	..	..	..	..	..	..	..
65. Softening of brain	3	..	..	..	..	..	..	..	..	..
66. Paralysis unspecified	15	..	..	..	..	..	..	1	..	..
67. General paresis	3	..	..	..	..	..	..	..	..	..
68. Other forms of insanity	..	..	..	..	..	..	..	..	..	..
69. Epilepsy	8	..	..	..	..	..	..	1	..	..
70. Convulsions (not puerperal)	..	..	..	..	..	..	..	..	..	..
71. Convulsions of infants	19	18	1	..	..	..	19	..	..	..
72. Tetanus, trismus	5	2	..	..	..	..	2	..	..	1
73. Chorea	..	..	..	..	..	..	..	..	..	..
74. Other nervous diseases	3	..	..	..	..	..	..	..	..	..
75. Diseases of the eyes	..	..	..	..	..	..	..	..	..	..
76. Diseases of the ears	2	..	..	..	1	..	1	..	..	..



Digitized by Google

20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
..	1	4	2	4	5	5	3	3	2	1	..	1	..	2	..
..	..	2	1	2	6	5	5	1	..	2	1	..	1	2	..
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..	..	1	1	..	1	..	4	..	1	..	..	..	1	..	..
..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..
1	1	1	..	1	..	..	3	..	..	..	1	..	..	1	..
..	..	1	4	1	2	2	..	..	2	1	1	..	..	..	..
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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
III.—Diseases of Circulatory System										
77. Pericarditis	1	..	..	..	..	..	..	..	..	..
78. Acute endocarditis	15	2	..	..	..	..	2	1	..	1
79. Organic heart diseases	192	2	..	..	..	1	3	2	7	6
80. Angina pectoris	2	..	..	..	..	..	..	..	..	..
81. Diseases of arteries, aneurism, etc.	10	..	..	..	..	..	..	..	..	..
82. Embolism, thrombosis	12	..	..	..	..	..	..	..	..	..
83. Diseases of veins (hæmorrhoids, varices, phlebitis, etc.)	1	..	..	..	..	..	..	..	..	..
84. Diseases of lymphatic (lymphangitis, etc.)	..	..	..	..	..	..	..	..	..	..
85. Hæmorrhage	2	1	..	..	..	..	1	..	..	..
86. Other diseases of circulatory system	..	..	..	..	..	..	..	..	..	..
IV.—Diseases of Respiratory System.										
87. Diseases of the Nasal Fossæ	..	..	..	..	..	..	..	..	..	..
88. Diseases of the larynx	2	..	..	..	..	..	..	..	..	..
89. Diseases of thyroid gland	..	..	..	..	..	..	..	..	..	..
90. Acute bronchitis	38	13	6	3	..	..	22	..	..	..
91. Chronic bronchitis	10	..	1	..	..	..	1	..	..	..
92. Broncho-pneumonia	128	64	21	6	3	1	95	1	..	..
93. Pneumonia	206	25	17	8	4	1	55	4	3	2
94. Pleurisy	11	1	1	..	..	..	2	..	..	..
95. Congestion of lungs, pulmonary apoplexy	4	..	..	..	..	..	..	..	..	..
96. Gangrene of lung	1	..	..	..	..	..	..	..	..	..
97. Asthma	5	..	..	..	..	..	..	..	..	..
98. Pulmonary emphysema	4	..	..	..	..	..	..	..	..	..
99. Other diseases of respiratory system (phthisis excepted)	5	..	1	..	..	..	1	..	..	..
V.—Diseases of Digestive System.										
100. Diseases of mouth and adnexa	2	..	..	1	..	..	1	..	..	..
101. Diseases of pharynx	..	..	..	..	..	..	..	..	..	..
102. Diseases of œsophagus	..	..	..	..	..	..	..	..	..	..
103. Ulcer of stomach	1	..	..	..	..	..	..	..	..	..
104. Other diseases of stomach (cancer excepted)	19	1	2	..	2	..	5	..	..	2
105. Diarrhœa and enteritis (under two years)	158	128	30	..	..	..	158	..	..	..
(of which) chronic diarrhœa	..	..	..	..	..	..	..	..	..	..
106. Diarrhœa and enteritis (two years and over)	27	..	..	4	2	1	7	1	..	..
107. Intestinal parasites	..	..	..	..	..	..	..	..	..	..
108. Hernia, intestinal obstruction	19	2	..	..	..	..	2	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
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4	11	9	12	12	9	13	15	13	12	13	11	6	2	9	..
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Cause of Death.	All Ages.	Under 1 year.	1	2	3	4	Total Under 5.	5	10	15
109. Other diseases of intestines....	2	..	..	..	..	..	..	..	..	..
110. Acute yellow atrophy of liver...	..	..	..	..	..	..	..	..	..	..
111. Hydatid tumor of liver.....	..	..	..	..	..	..	..	..	..	..
112. Cirrhosis of liver.....	22	..	..	..	..	..	..	..	..	..
113. Biliary calculi.....	2	..	..	..	..	..	..	..	..	..
114. Other diseases of liver.....	4	..	..	..	..	..	..	..	..	..
115. Diseases of spleen.....	..	..	..	..	..	..	..	..	..	..
116. Simple peritonitis (non-puerperal)	10	..	..	..	..	..	..	..	..	2
117. Other diseases of digestive system (except tuberculosis and cancer).....	..	..	..	..	..	..	..	..	..	..
118. Appendicitis and iliac abscess..	7	..	..	..	..	..	..	..	1	..
VI.—Diseases of Genito-urinary System.										
119. Acute nephritis.....	19	1	..	1	..	1	3	1	1	1
120. Bright's disease.....	187	..	..	..	..	..	..	1	..	2
121. Other diseases of kidneys and adnexa	1	..	..	..	..	..	..	..	..	..
122. Urinary calculus.....	2	..	..	..	..	..	..	..	..	..
123. Diseases of bladder.....	2	..	..	..	..	..	..	..	..	..
124. Diseases of urethra, urinary abscess, etc.....	..	..	..	..	..	..	..	..	..	..
125. Diseases of the prostate.....	..	..	..	..	..	..	..	..	..	..
126. Non-venereal diseases of male genital organs.....	..	..	..	..	..	..	..	..	..	..
127. Metritis	2	..	..	..	..	..	..	..	..	1
128. Uterine hæmorrhage (not puerperal).....	..	..	..	..	..	..	..	..	..	..
129. Uterine tumor (not cancer).....	5	..	..	..	..	..	..	..	..	..
130. Other diseases of uterus	3	..	..	..	..	..	..	..	..	..
131. Ovarian cysts and tumors.....	2	..	..	..	..	..	..	..	..	..
132. Other diseases of female genital organs.....	4	..	..	..	..	..	..	..	..	..
133. Diseases of breast (not puerperal, nor cancer.....	1	..	..	..	..	..	..	..	..	..
VII.—Puerperal Diseases.										
134. Accidents of pregnancy.....	12	..	..	..	..	..	..	..	..	..
135. Puerperal hæmorrhage.....	2	..	..	..	..	..	..	..	..	..
136. Other accidents of labor.....	4	..	..	..	..	..	..	..	..	..
137. Puerperal septicæmia.....	25	..	..	..	..	..	..	..	..	2
138. Puerperal albuminuria and convulsions.....	12	..	..	..	..	..	..	..	..	..
139. Puerperal phlegmasia alba dolens	..	..	..	..	..	..	..	..	..	..
140. Other accidents of parturition, sudden death.....	5	..	..	..	..	..	..	..	..	..
141. Puerperal diseases of breast....	..	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.
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..	..	2	4	4	2	4	..	4	2	..	..	..	..	..
..	..	..	..	..	..	1	..	..	..	..	1	..	..	..
..	..	..	..	..	..	3	..	..	..	1	..	..	..	..
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1	..	1	3	1	..	..	..	1	..	..	1	..	..	..
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..	..	2	1	1	1	..	..	..	..	1	..	..	..	..
2	3	2	2	..	1	1	2	..	..	..	..	..	..	..
6	6	11	13	16	12	21	22	25	13	21	16	2	..	16
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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
VIII.—Diseases of Skin and Cellular Tissue.										
142. Gangrene	8	..	..	..	..	..	..	..	..	..
143. Carbuncle	1	..	..	..	..	..	..	..	..	..
144. Phlegmon, acute abscess	1	1	..	..	..	..	1	..	..	..
145. Other diseases of skin and adnexa	4	1	..	..	..	..	1	..	..	..
IX.—Diseases of Locomotory System.										
146. Diseases of bones (not tuberculous)	4	2	..	1	..	..	3	..	1	..
147. Arthritis, other diseases of joints (except tuberculosis and rheumatism)	..	..	..	..	..	..	..	..	..	..
148. Amputation	..	..	..	..	..	..	..	..	..	..
149. Other diseases of organs of locomotion	..	..	..	..	..	..	..	..	..	..
X.—Malformations.										
150. Congenital malformations	12	11	1	..	..	..	12	..	..	..
XI.—Diseases of Infancy.										
151. Congenital debility, icterus and sclerema	106	106	..	..	..	..	106	..	..	..
151a. Injury during birth	2	2	..	..	..	..	2	..	..	..
152. Other diseases peculiar to infancy	4	4	..	..	..	..	4	..	..	..
153. Neglect	..	..	..	..	..	..	..	..	..	..
XII.—Diseases of Old Age.										
154. Senile debility	36	..	..	..	..	..	..	..	..	..
XIII.—External Causes.										
155. Suicide by poison	5	..	..	..	..	..	..	..	..	..
156. Suicide by asphyxia	6	..	..	..	..	..	..	..	..	..
157. Suicide by hanging or strangulation	1	..	..	..	..	..	..	..	..	..
158. Suicide by drowning	1	..	..	..	..	..	..	..	..	..
159. Suicide by firearms	1	..	..	..	..	..	..	..	..	..
160. Suicide by cutting instruments	1	..	..	..	..	..	..	..	..	..
161. Suicide by precipitation from height	3	..	..	..	..	..	..	..	..	..
162. Suicide by crushing	..	..	..	..	..	..	..	..	..	..
163. Suicide by other methods	..	..	..	..	..	..	..	..	..	..
164. Fractures	..	..	..	..	..	..	..	..	..	..
165. Dislocations	..	..	..	..	..	..	..	..	..	..
166. Other accidental injuries	26	1	2	3	1	1	8	2	..	..
167. Burn, by fire scald	15	1	1	3	1	1	7	1	1	..
168. Burning by corrosive substances	..	..	..	..	..	..	..	..	..	..
169. Sunstroke	1	1	..	..	..	..	1	..	..	..
170. Freezing	..	..	..	..	..	..	..	..	..	..
171. Electrical shock	..	..	..	..	..	..	..	..	..	..
172. Accidental drowning	3	..	..	..	..	..	..	..	..	..



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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.
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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
173. Inanition (starvation)	..	..	..	..	..	..	..	..	..	..
174. Inhalation of noxious gas, not suicidal	6	..	..	..	..	1	1	..	..	..
175. Other acute poisoning	5	..	..	..	..	..	..	1	..	..
176. Other external violence	8	2	..	..	..	..	2	1	..	..
(Of which) a. Homicide, by blows	2	..	..	..	..	..	..	..	..	..
b. Homicide, by sharp instruments	2	..	..	..	..	..	..	..	..	..
c. Homicide, by gunshot	1	..	..	..	..	..	..	..	..	..
d. Homicide, by poison	..	..	..	..	..	..	..	..	..	..
e. Homicide, by other methods	2	1	..	..	..	..	1	1	..	..
XIV.—Ill-defined or not Specified Causes.										
177. Dropsy	..	..	..	..	..	..	..	..	..	..
178. Sudden death, not puerperal	..	..	..	..	..	..	..	..	..	..
179. Ill-defined causes	24	18	6	..	..	..	24	..	..	..
I.—General diseases	1,087	79	89	54	40	16	278	32	21	45
a. Tuberculous diseases	559	10	6	4	7	1	28	7	13	40
b. Cancer	137	..	..	..	..	..	..	..	1	..
II.—Diseases of nervous system and organs of sense	230	27	9	4	3	1	44	9	4	3
III.—Diseases of circulatory system	235	5	..	..	..	1	6	3	7	7
IV.—Diseases of respiratory system	414	103	47	17	7	2	176	5	3	2
V.—Diseases of digestive system	273	131	32	5	4	1	173	1	1	4
VI.—Diseases of genito-urinary system	228	1	..	1	..	1	3	2	1	4
VII.—Puerperal diseases	60	..	..	..	..	..	..	..	..	2
VIII.—Diseases of skin and cellular tissue	14	2	..	..	..	..	2	..	..	..
IX.—Diseases of locomotor system	4	2	..	1	..	..	3	..	1	..
X.—Malformations	12	11	1	..	..	..	12	..	..	..
XI.—Diseases of infancy	112	112	..	..	..	..	112	..	..	..
XII.—Diseases of old age	36	..	..	..	..	..	..	..	..	..
XIII.—External causes	82	5	3	6	2	3	19	5	1	..
a. Suicide	18	..	..	..	..	..	..	..	..	..
b. Homicide	7	1	..	..	..	..	1	1	..	..
c. Accident	57	4	3	6	2	3	18	4	1	..
XIV.—Causes ill-defined	24	18	6	..	..	..	24	..	..	..
Total females	2,811	1,196	187	88	56	25	852	57	39	67



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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
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95	118	113	87	69	47	45	39	35	24	19	12	5	3	51	..
85	109	91	72	46	24	19	8	8	4	4	1	..	..	36	..
1	2	7	7	15	16	20	22	20	11	5	6	2	2	4	..
2	6	4	4	6	15	17	13	22	26	30	11	10	4	5	..
4	3	9	19	10	22	22	20	26	21	18	20	11	7	7	..
7	15	11	17	19	15	19	18	23	19	22	18	18	7	16	..
1	3	10	12	10	8	12	5	7	6	6	7	7	..	5	..
9	16	14	17	18	14	22	25	27	14	22	16	3	1	18	..
9	16	16	13	3	1	..	..	..	..	..	..	..	..	1	..
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3	1	2	1	..	3	2	2	4	..	..	..	..	..	..	..
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2	3	4	6	3	3	2	3	3	1	..	3	1	..	1	..
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133	182	183	176	140	130	142	126	150	115	124	89	72	34	111	..

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Deaths of Males by Age, and Cause of Death,

Cause of Death.	Total both Sexes	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
I —General Diseases.											
1. Typhoid fever	230	135	..	1	..	1	1	3	2	6	20
2. Typhus fever	..	..	..	..	..	..	..	..	..	..	..
3. Relapsing fever	..	..	..	..	..	..	..	..	..	..	..
4. Malarial fever	29	16	2	..	..	1	1	4	..	1	1
5. Small-pox	6	4	..	..	..	..	..	..	..	..	..
6. Measles	446	226	70	72	42	23	8	215	9	..	..
7. Scarlet fever	258	126	13	15	24	31	6	89	23	6	1
8. Whooping cough	132	49	29	11	7	1	..	48	1	..	..
9. Diphtheria and croup	793	433	37	98	82	76	40	333	82	9	5
10. Influenza	114	45	7	5	..	..	1	13	1	1	1
11. Miliary fever	..	..	..	..	..	..	..	..	..	..	..
12. Asiatic cholera	..	..	..	..	..	..	..	..	..	..	..
13. Cholera nostras	..	..	..	..	..	..	..	..	..	..	..
14. Dysentery	71	35	6	3	2	3	1	15	1	..	..
15. Plague	..	..	..	..	..	..	..	..	..	..	..
16. Yellow fever	..	..	..	..	..	..	..	..	..	..	..
17. Leprosy	..	..	..	..	..	..	..	..	..	..	..
18. Erysipelas	81	43	11	..	..	1	..	12	1	..	..
19. Other epidemic diseases	9	5	2	2	..	..	..	4	..	..	..
20. Pyæmia, septicæmia	7	6	..	..	..	..	..	..	..	..	..
21. Glanders	..	..	..	..	..	..	..	..	..	..	..
22. Malignant pustule	2	2	..	..	..	..	..	..	..	..	..
23. Hydrophobia	2	2	..	..	..	..	..	..	..	..	..
24. Actinomycosis	1	1	..	..	..	..	..	..	..	..	..
24a. Trichinosis	..	..	..	..	..	..	..	..	..	..	..
25. Pellagra	..	..	..	..	..	..	..	..	..	..	..
26. Tuberculosis of larynx	30	22	..	..	..	1	..	1	..	..	1
27. Tuberculosis of lungs	2,557	1,504	8	5	2	2	2	19	3	14	84
28. Tubercular meningitis	207	120	35	22	10	15	5	87	8	6	6
29. Abdominal tuberculosis	68	38	9	5	1	1	1	17	1	1	2
30. Pott's disease	19	7	..	1	..	1	..	2	1	..	1
31. Cold abscess	3	1	1	..	..	..	..	1	..	..	..
32. White swelling	16	9	..	1	..	..	..	1	2	2	..

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BROOKLYN.

for the Year Ending December 31, 1906.

20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
25	18	19	12	16	3	5	4	..	..	1	1	..	..	3	..
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1	1	6	3	3	4	2	..	..	..	..	..	..	..	..	..
147	189	242	253	194	145	101	42	35	22	11	2	1	..	34	1
2	..	2	2	3	3	1	..	..	..	..	..	..	..	4	..
1	2	2	2	2	2	3	3	..	..	..	..	..	..	..	..
..	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..

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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
33. Tuberculosis of other organs	15	10	1	..	..	..	..	1	..	1	..
34. General tuberculosis	31	21	5	3	1	..	..	9	..	..	..
35. Scrofula	5	5	3	1	1	..	..	5	..	..	..
36. Syphilis	51	37	18	2	..	..	2	22	..	..	..
37. Gonorrhœa (adults)	..	..	..	..	..	..	..	..	..	..	..
38. Gonorrhœa (children)	1	1	..	1	..	..	..	1	..	..	..
39. Cancers, etc., of the mouth	42	35	..	..	..	..	..	..	..	..	..
40. Cancer of stomach, liver	434	194	..	..	..	..	..	..	..	..	..
41. Cancer of intestines, rectum	113	41	..	..	..	..	..	..	..	..	1
42. Cancer of female genital organs	145	..	..	..	..	..	..	..	..	..	..
43. Cancer of the breast	99	4	..	..	..	..	..	..	..	..	..
44. Cancer of the skin	13	10	..	..	..	..	..	..	..	..	..
45. Cancer of other organs and unspecified	129	59	..	..	..	1	..	1	2	..	2
46. Other tumors (except of female genital organs	10	2	1	..	..	..	..	1	..	..	..
47. Acute articular rheumatism	141	54	3	2	1	..	..	6	5	3	4
48. Chronic rheumatism and gout	40	19	2	..	..	..	..	2	1	..	1
49. Scurvy	3	2	2	..	..	..	..	2	..	..	..
50. Diabetes	207	85	..	..	..	..	..	..	2	..	1
51. Exophthalmic goitre	5	2	..	..	..	..	..	..	..	..	..
52. Addison's disease	..	..	..	..	..	..	..	..	..	..	..
53. Leukæmia	18	12	..	..	..	..	..	..	1	1	1
54. Anæmia, chlorosis	27	9	3	..	..	..	..	3	1	..	1
55. Other general diseases	..	..	..	..	..	..	..	..	..	..	..
56. Alcoholism, acute and chronic	183	159	..	..	..	..	..	..	..	..	..
57. Lead poisoning	8	8	..	..	..	..	..	..	..	..	..
58. Other chronic poisonings of occupation	..	..	..	..	..	..	..	..	..	..	..
59. Other chronic poisonings	3	1	..	..	..	..	..	..	..	..	..
II.—Diseases of Nervous System and Organs of Sense.											
60. Encephalitis	3	3	1	1	..	..	..	2	..	..	..
61. Simple meningitis	295	160	28	27	21	11	6	93	21	13	11
61a. (of which) cerebro-spinal meningitis	184	105	14	13	13	7	5	52	15	12	7
62. Locomotor ataxia	30	24	..	..	..	..	..	..	..	..	..
63. Other diseases of spinal cord	60	35	..	..	2	..	..	2	3	..	..
64. Apoplexy, congestion of brain	1,048	499	1	..	1	1	..	3	..	..	2
65. Softening of brain	26	14	..	..	..	..	1	1	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over	Colored.	Chinese.
1	1	..	1	3	..	1	1	..	..	..	..	..	..	1	..
1	2	1	3	2	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	2	2	3	3	1	1	1	..	1	..	..	..	..	2	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	1	..	1	2	3	3	3	8	4	6	1	3	..	..	..
2	2	3	9	17	24	35	23	24	21	17	12	4	1	3	..
..	1	..	4	6	2	4	8	3	4	5	2	1	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	1	..	..	..	..	1	..	..	..	1	1	..	1	..
..	..	..	..	1	..	2	..	..	1	3	1	1	1	..	..
2	1	1	3	7	5	6	9	3	5	7	3	1	1	..	..
..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
4	3	2	3	5	3	3	4	4	2	2	..	1	..	..	..
1	1	2	..	..	..	2	..	2	4	1	1	1	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	..	4	2	5	6	17	12	12	9	7	4	2	..	..	..
..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	1	..	1	1	3	1	..	1	1	..	..	..	..	..	1
1	..	..	..	1	..	1	1	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	17	32	37	32	18	11	7	2	1	1	..	..	..	..	..
1	1	2	..	1	2	..	1	..	..	..	..	..	..	..	..
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..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	5	3	3	2	1	2	..	..	..	..	..	..	..	3	..
6	4	3	3	1	1	1	..	..	..	..	..	..	..	1	..
..	..	..	3	5	2	4	4	3	2	1	..	..	..	..	..
..	..	2	3	1	2	..	5	6	5	3	3	..	..	2	..
3	3	11	9	21	30	56	59	70	64	67	57	33	11	7	1
..	..	1	1	2	1	1	1	..	3	..	2	1	..	..	..

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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
66. Paralysis unspecified..	55	24	..	..	..	..	..	..	..	..	1
67. General paresis.....	56	40	..	..	..	..	..	..	..	..	..
68. Other forms of insanity.....	26	14	..	..	..	..	..	..	..	..	1
69. Epilepsy.....	51	29	1	1	..	1	..	3	3	..	2
70. Convulsions (not puerperal).....	1	1	..	..	..	..	..	..	1	..	..
71. Convulsions of infants.....	214	124	98	19	4	1	2	124	..	..	..
72. Tetanus, trismus	34	25	8	..	..	..	..	8	4	6	1
73. Chorea	3	1	..	..	..	..	..	..	..	..	..
74. Other nervous diseases.....	61	36	1	2	1	..	..	4	2	..	1
75. Diseases of the eyes ..	2	1	..	..	..	..	1	1	..	..	..
76. Diseases of the ears...	33	20	4	3	2	1	..	10	1	1	1
III.—Diseases of Circulatory System.											
77. Pericarditis.....	20	13	..	..	..	..	..	..	2	2	..
78. Acute endocarditis....	333	160	2	..	1	1	..	4	4	1	2
79. Organic heart diseases	1,651	846	9	2	..	1	1	13	11	14	16
80. Angina pectoris.....	93	61	..	..	..	..	..	..	..	..	..
81. Diseases of arteries, aneurism, etc.....	74	45	..	..	..	..	..	..	..	..	..
82. Embolism, thrombosis	60	22	..	..	..	..	..	..	..	..	..
83. Diseases of veins, hæmorrhoids, varices, phlebitis, etc ..	11	3	..	..	..	..	..	..	..	..	..
84. Diseases of lymphatics (lymphangitis, etc.).....	4	3	1	1	..	1	..	3	..	..	..
85. Hæmorrhage	13	8	4	..	..	..	..	4	1	1	..
86. Other diseases of circulatory system ...	..	..	..	..	..	..	..	..	..	..	..
IV.—Diseases of Respiratory System.											
87. Diseases of nasal fossae	1	..	..	..	..	..	..	..	..	..	..
88. Diseases of the larynx	24	13	6	15	..	..	..	11	1	..	..
89. Diseases of thyroid gland.....	..	..	..	..	..	..	..	..	..	..	..
90. Acute bronchitis.....	524	263	181	28	7	7	2	225	5	1	1
91. Chronic bronchitis....	175	73	4	1	..	..	..	5	1	..	1
92. Broncho-pneumonia ..	1,460	743	304	173	66	21	13	577	23	5	8
93. Pneumonia	2,097	1,216	171	118	37	23	12	361	37	13	24
94. Pleurisy	78	49	1	6	1	1	1	10	1	1	3
95. Congestion of the lungs, pulmonary apoplexy	27	15	3	1	..	..	..	4	..	1	..
96. Gangrene of lung.....	8	5	..	..	..	..	..	..	..	..	..
97. Asthma.....	61	33	..	..	..	..	..	..	1	..	..
98. Pulmonary emphysema	8	5	..	..	..	..	..	..	..	..	..
99. Other diseases of respiratory system (phthisis excepted)	52	35	..	..	..	..	..	..	..	..	1

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
1	..	..	1	..	1	2	2	3	2	3	4	3	1	3	..
..	..	2	6	7	5	5	4	2	4	3	2	..	..	1	..
3	1	..	2	1	..	1	1	1	1	2	..	..	..	..	..
2	6	2	2	1	2	2	..	4	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..
1	..	..	..	..	1	1	3	..	..	..	..	..	..	..	..
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
3	4	5	6	2	4	1	1	1	2	..	..	..	..	2	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	1	1	1	..	..	1	1	..	..	..	..	..	1	..
..	1	1	2	..	2	1	..	2	..	..	..	..	..	..	..
7	10	14	6	7	13	10	17	18	14	21	6	4	2	6	..
21	27	32	47	60	59	78	101	96	106	79	55	24	7	14	..
..	1	3	2	5	4	7	12	9	10	4	3	1	..	1	..
..	1	1	1	..	..	4	6	5	9	9	2	5	2	4	..
..	1	1	..	..	2	5	1	2	2	4	2	1	1	1	..
..	..	..	1	1	..	..	..	1	..	..	..	..	..	..	..
..	..	..	..	..	..	..		..	..	..	..	..	..	..	..
..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	..	2	1	4	2	1	1	6	3	4	4	2	8	..
..	2	1	..	1	5	6	6	8	13	8	6	6	4	..	..
3	10	9	16	8	12	7	7	16	9	14	15	2	2	9	..
46	47	87	85	89	86	59	57	79	53	50	26	9	8	26	1
2	6	3	4	1	3	3	1	2	2	4	1	2	..	..	..
1	..	..	..	2	..	..	..	1	..	2	1	1	2	1	..
..	..	..	1	..	..	..	..	4	..	..	..	..	..	..	..
..	1	..	1	..	4	..	4	4	8	6	2	2	..	1	..
..	..	..	..	..	1	1	1	..	1	..	1	..	..	..	..
2	1	7	6	2	8	1	3	1	1	1	..	..	1	3	..

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Cause of Death	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
V.—Diseases of Digestive System.											
100. Diseases of mouth and adnexa	5	4	1	1	..	..	..	2	..	..	..
101. Diseases of pharynx	17	10	1	2	1	..	..	4	..	..	1
102. Diseases of œsophagus	4	3	..	..	..	..	1	1	..	..	..
103. Ulcer of stomach	50	29	1	..	..	..	..	1	1	..	..
104. Other diseases of stomach (cancer excepted)	181	104	31	6	5	2	1	45	1	1	..
105. Diarrhœa and enteritis (under two years)	2,007	1,139	976	163	..	..	..	1,139	..	..	..
(of which) chronic diarrhœa	..	..	..	..	..	..	..	..	..	..	..
106. Diarrhœa and enteritis (two years and over)	259	128	..	..	34	10	6	50	8	3	..
107. Intestinal parasites	2	1	..	1	..	..	..	1	..	..	..
108. Hernia, intestinal obstruction	162	71	10	1	2	..	..	13	..	1	2
109. Other diseases of intestines	32	15	4	..	2	..	..	6	2	..	1
110. Acute yellow atrophy of liver	6	2	..	..	..	1	..	1	..	..	..
111. Hydatid tumor of liver	..	..	..	..	..	..	..	..	..	..	..
112. Cirrhosis of liver	384	231	..	..	..	..	1	1	..	..	..
113. Biliary calculi	27	6	..	..	..	..	..	..	..	..	..
114. Other diseases of liver	47	22	..	..	..	..	..	..	..	..	..
115. Diseases of spleen	1	..	..	..	..	..	..	..	..	..	..
116. Simple peritonitis (non-puerperal)	10	4	..	..	..	..	..	..	2	..	..
117. Other diseases of digestive system (except tuberculosis and cancer)	3	3	..	..	..	..	..	..	..	..	..
118. Appendicitis and iliac abscess	171	105	1	1	1	..	2	5	6	8	10
VI.—Diseases of Genito-urinary system.											
119. Acute nephritis	228	120	10	1	7	3	1	22	8	2	6
120. Bright's disease	1,848	958	1	5	..	4	..	10	11	8	14
121. Other diseases of kidneys and adnexa	22	12	..	..	..	..	..	..	..	..	..
122. Urinary calculus	4	2	..	..	..	..	..	..	..	..	..
123. Diseases of bladder	45	35	..	..	1	..	..	1	..	..	..
124. Diseases of urethra, urinary abscess, etc.	6	6	..	..	..	..	..	..	..	..	..
125. Diseases of the prostate	38	38	..	..	.	..	..	..	..	..	..
126. Non-venereal diseases of male genital organs	..	..	..	..	..	..	..	..	..	..	..
127. Metritis	6	..	..	..	..	..	..	..	..	..	..
128. Uterine hæmorrhage (not puerperal)	1	..	..	..	..	..	..	..	..	..	..
129. Uterine tumor (not cancer)	26	..	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..
1	1	2	..	..	1	..	..	..	..	..	..	..	..	..	..
..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..
2	2	4	4	4	5	1	..	1	1	3	..	..	..	..	..
3	3	2	5	2	4	6	7	7	1	2	7	5	3	4	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	21	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	6	4	3	4	3	3	4	7	4	6	10	7	2	3	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	2	1	3	2	3	8	2	6	12	6	3	1	2	1	..
..	..	..	..	1	..	..	2	1	..	2	..	..	..	2	..
..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	9	18	21	30	37	29	22	29	13	12	3	3	1	3	..
..	..	..	1	2	..	..	..	1	1	..	..	..	1	..	..
2	1	2	3	2	3	3	1	..	1	1	1	2	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
..	1	..	..	..	..	..	1	..	1	..	..	..	..	..	..
11	11	15	4	6	8	5	5	3	..	1	1	..	..	1	..
3	8	11	17	7	9	10	3	5	2	4	2	1	..	..	..
20	37	50	77	85	76	102	92	107	119	66	44	31	9	14	..
..	2	2	2	..	..	..	2	2	1	1	..	..	..	..	..
..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..
..	..	2	..	1	..	4	4	1	3	6	6	6	1	1	..
..	1	..	1	1	1	1	..	..	..	..	..	1	..	..	..
..	..	..	2	..	1	1	2	3	8	10	4	4	3	..	..
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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
130. Other diseases of uterus	15	..	..	..	..	..	..	..	..	..	..
131. Ovarian. cysts and tumors	25	..	..	..	..	..	..	..	..	..	..
132. Other diseases of female genital organs	44	..	..	..	..	..	..	..	..	..	..
133. Diseases of breast (not puerperal, nor cancer)	..	..	..	..	..	..	..	..	..	..	..
VII.—Puerperal Diseases.											
134. Accidents of pregnancy	54	..	..	..	..	..	..	..	..	..	..
135. Puerperal hæmorrhage	12	..	..	..	..	..	..	..	..	..	..
136. Other accidents of labor	56	..	..	..	..	..	..	..	..	..	..
137. Puerperal septicæmia	79	..	..	..	..	..	..	..	..	..	..
138. Puerperal albuminuria and convulsions.	38	..	..	..	..	..	..	..	..	..	..
139. Puerperal phlegmasia alba dolens	..	..	..	..	..	..	..	..	..	..	..
140. Other accidents of parturition, sudden death	10	..	..	..	..	..	..	..	..	..	..
141. Puerperal diseases of breast	..	..	..	..	..	..	..	..	..	..	..
VIII.—Diseases of Skin and Cellular Tissue.											
142. Gangrene	32	13	..	..	1	..	..	1	1	..	..
143. Carbuncle	11	8	..	..	..	..	..	..	..	..	..
144. Phlegmon, acute abscess	19	13	1	..	..	..	..	1	..	..	..
145. Other diseases of skin and adnexa	8	4	2	..	..	..	..	2	..	..	..
IX.—Diseases of Locomotory System.											
146. Diseases of bones (non-tuberculous)	48	24	6	3	2	..	1	12	1	2	1
147. Arthritis, other diseases of joints (except tuberculosis and rheumatism)	5	3	..	..	..	..	..	..	..	..	2
148. Amputation	..	..	..	..	..	..	..	..	..	..	..
149. Other diseases of organs of locomotion	1	1	..	..	..	..	..	..	..	1	..
X.—Malformations.											
150. Congenital malformations	309	165	151	7	1	1	2	162	..	3	..
XI.—Diseases of Infancy.											
151. Congenital debility, icterus and sclerema	926	559	558	1	..	..	..	559	..	..	..
151a. Injury during birth	106	60	60	..	..	..	..	60	..	..	..
152. Other diseases peculiar to infancy	49	36	35	1	..	..	..	36	..	..	..
153. Neglect	3	..	..	..	..	..	..	..	..	..	..
XII.—Diseases of Old Age.											
154. Senile debility	393	150	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
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..	..	..	..	1	..	1	..	..	2	1	4	1	1	..	..
..	1	..	..	2	..	..	..	2	2	..	1	..	..	..	..
..	..	3	..	3	1	1	..	2	..	2	..	..	..	..	..
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1	..	..	1	1	1	1	2	..	1	..	..	..	..	2	..
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..	..	..	..	..	..	..	2	3	13	11	35	40	46	1	..

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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
XIII.—External Causes.											
155. Suicide by poison.....	41	34	..	..	..	..	..	..	..	..	1
156. Suicide by asphyxia..	49	34	..	..	..	..	..	..	..	1	..
157. Suicide by hanging or strangulation...	21	17	..	..	..	..	..	..	..	..	..
158. Suicide by drowning..	2	..	..	..	..	..	..	..	..	..	..
159. Suicide by firearms...	70	66	..	..	..	..	..	..	..	1	4
160. Suicide by cutting instruments.....	16	15	..	..	..	..	..	..	..	..	..
161. Suicide by precipitation from height...	5	2	..	..	..	..	..	..	..	..	..
162. Suicide by crushing...	..	..	..	..	..	..	..	..	..	..	..
163. Suicide by other methods	..	..	..	..	..	..	..	..	..	..	..
164. Fractures.....	29	24	..	..	..	..	..	..	1	2	1
165. Dislocations.....	..	..	..	..	..	..	..	..	..	..	..
166. Other accidental injuries.....	571	469	2	4	8	8	9	31	49	16	15
167. Burn, by fire, scald...	122	48	6	7	7	4	3	27	3	..	1
168. Burning by corrosive substances....	..	..	..	..	..	..	..	..	..	..	..
169. Sunstroke	28	18	1	..	..	..	..	1	..	1	1
170. Freezing	4	4	..	..	..	..	..	..	..	..	..
171. Electrical shock.....	10	10	..	..	..	..	..	..	..	1	..
172. Accidental drowning.	134	125	..	..	..	..	..	..	7	13	14
173. Inanition (starvation)	1	1	..	1	..	..	..	1	..	..	..
174. Inhalation of noxious gas, not suicidal	91	62	1	..	..	..	1	2	..	1	5
175. Other acute poisoning.....	34	16	2	1	..	..	1	4	3	..	2
176. Other external violence	102	81	4	..	..	..	1	5	..	2	6
Of which											
a. Homicide, by blows.....	12	12	..	..	..	..	1	1	..	..	..
b. Homicide by sharp instruments	20	17	..	..	..	..	..	..	..	..	3
c. Homicide, by gunshot.....	46	41	..	..	..	..	..	..	..	1	3
d. Homicide, by poison	1	..	..	..	..	..	..	..	..	..	..
e. Homicide, by other methods...	2	1	..	..	..	..	..	..	..	1	..
XIV.—Ill-defined or not Specified Causes.											
177. Dropsy	..	..	..	..	..	..	..	..	..	..	..
178. Sudden death, not puerperal.....	..	..	..	..	..	..	..	..	..	..	..
179. Ill-defined causes.....	283	153	131	18	1	1	..	151	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
4	3	3	8	4	2	2	4	1	2	..	..	..	..	..	..
2	1	5	3	4	1	1	5	6	..	3	2	..	..	..	..
1	1	1	2	3	3	..	2	4	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	9	5	8	3	6	9	7	2	5	2	..	1	1	1	..
..	1	1	2	1	..	2	4	2	1	1	..	..	..	..	..
..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..
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..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	1	6	3	1	2	..	..	3	..	1	..	1	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
49	37	42	44	55	26	33	17	25	14	8	3	3	2	5	..
1	..	3	2	1	1	3	4	1	..	..	1	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	2	3	2	2	1	1	..	2	..	..	..	1	..	..	..
..	..	..	..	..	1	1	1	1	..	..	..	..	..	..	..
2	2	3	..	1	1	..	..	..	..	..	..	..	..	..	..
14	9	9	15	15	12	4	4	4	2	1	1	1	..	5	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	6	10	6	8	3	2	5	4	2	2	1	..	..	3	..
..	1	2	..	..	2	..	..	1	..	1	..	..	..	1	..
12	11	6	20	5	6	6	1	1	..	..	..	..	..	1	2
2	3	1	3	..	..	1	1	..	..	..	..	..	..	..	..
2	4	1	3	1	1	2	..	..	..	..	..	..	..	..	..
7	4	3	12	4	4	2	..	1	..	..	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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..	..	..	1	1	..	..	..	..	..	..	..	..	..	7	..

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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
I. General diseases....	6,804	3,599	268	250	173	158	68	917	147	51	136
a. Tuberculous diseases.....	2,946	1,732	59	37	14	20	8	138	15	24	97
b. Cancer.....	975	343	..	..	..	1	..	1	2	..	3
II.—Diseases of nervous system and organs of sense..	1,998	1,050	142	53	31	15	10	251	35	20	21
III.—Diseases of circulatory system..	2,259	1,161	16	3	1	3	1	24	18	18	18
IV.—Diseases of respiratory system .	4,515	2,450	670	332	111	52	28	1,193	69	21	38
V.—Diseases of digestive system.....	3,368	1,877	1,025	175	45	13	11	1,269	20	13	20
VI.—Diseases of genito-urinary system	2,308	1,171	11	6	8	7	1	33	19	10	20
VII.—Puerperal diseases.	249	..	..	..	..	..	..	..	..	..	..
VIII.—Diseases of skin and cellular tissue.....	70	38	3	..	1	..	..	4	1	..	..
IX.—Diseases of locomotory system.	54	28	6	3	2	..	1	12	1	3	3
X.—Malformations....	309	165	151	7	1	1	2	162	..	3	..
XI.—Diseases of infancy.	1,084	655	653	2	..	..	..	655	..	..	..
XII.—Diseases of old age.	393	150	..	..	..	..	..	..	..	..	..
XIII.—External causes....	1,330	1,026	16	13	15	12	15	71	63	38	50
a. Suicide.....	204	168	..	..	..	..	..	..	..	2	5
b. Homicide.....	81	71	..	..	..	..	1	1	..	2	6
c. Accident.....	1,045	787	16	13	15	12	14	70	63	34	39
XIV.—Causes ill-defined..	283	153	131	18	1	1	..	151	..	..	..
Total males.....		13,523	3,092	862	389	262	137	4,742	373	177	306
Total females...		11,501	2,361	709	359	218	158	3,805	348	195	252
Total both sexes.		25,024	5,453	1,571	748	480	295	8,547	721	372	558

BOROUGH OF

Deaths of Females by Age and Cause of Death

Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
I.—General Diseases.										
1. Typhoid fever.....	95	..	..	..	..	2	2	4	7	12
2. Typhus fever.....	..	..	..	..	..	..	..	..	..	..
3. Relapsing fever.....	..	..	..	..	..	..	..	..	..	..
4. Malarial fever.....	13	..	1	1	..	..	2	..	1	..
5. Smallpox.....	2	1	..	..	1	..	2	..	..	..
6. Measles.....	220	53	80	44	23	7	207	11	..	2
7. Scarlet fever.....	132	14	19	24	18	12	87	28	9	1

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
206	258	330	353	318	232	210	129	105	83	67	32	19	6	62	2
156	197	253	265	208	154	108	46	35	22	11	2	1	..	39	1
4	5	5	17	33	34	50	44	38	35	38	20	11	13	5	..
20	20	27	37	44	49	75	81	91	83	79	68	37	12	25	1
28	41	53	59	73	80	105	137	133	141	117	68	35	13	26	..
55	67	107	115	104	123	79	80	117	93	88	56	26	19	48	1
31	37	49	45	54	65	55	44	55	34	33	25	19	9	35	..
23	48	65	99	94	87	118	104	118	134	87	56	43	13	15	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	1	3	..	6	1	3	1	4	4	3	5	1	1	..	..
1	..	..	1	1	1	1	2	1	1	..	..	..	..	2	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	12	..
..	..	..	..	..	..	..	2	3	13	11	35	40	46	1	..
96	85	99	115	103	67	64	54	57	26	19	9	7	3	16	2
10	16	15	23	15	12	14	22	15	8	6	3	1	1	1	..
11	11	5	18	5	5	5	1	1	..	..	..	..	..	1	..
75	58	79	74	83	50	45	31	41	18	13	6	6	2	14	2
..	..	..	1	1	..	..	..	..	..	..	..	..	..	7	..
460	557	733	825	798	705	710	634	684	612	504	354	227	122	252	6
427	513	530	507	541	459	548	599	638	644	563	440	281	211	251	1
887	1,070	1,263	1,332	1,339	1,164	1,258	1,233	1,322	1,256	1,067	794	508	333	503	7

BROOKLYN.
for the Year Ending December 31, 1906.

20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.
16	14	14	10	7	5	2	..	..	..	1	1	..	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	1	1	..	1	..	2	1	2	..	1	..	..	..	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
3	2	..	1	1	..	..	..	..	..	..	..	..	..	..

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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
8. Whooping cough	83	42	19	12	4	3	80	3	..	.
9. Diphtheria and croup	360	33	63	75	48	42	261	75	14	5
10. Influenza	69	8	4	3	..	..	15	2	1	2
11. Miliary fever	..	..	..	..	..	..	..	..	..	..
12. Asiatic cholera	..	..	..	..	..	..	..	..	..	..
13 Cholera nostras	..	..	..	..	..	..	..	..	..	..
14. Dysentery	36	5	1	3	..	2	11	..	..	2
15. Plague	..	..	..	..	..	..	..	..	..	..
16. Yellow fever	..	..	..	..	..	..	..	..	..	..
17. Leprosy	..	..	..	..	..	..	..	..	..	..
18. Erysipelas	38	16	2	..	..	..	18	..	..	2
19. Other epidemic diseases	4	1	..	..	2	..	3	..	..	..
20. Pyæmia, septicæmia	1	1	..	..	..	..	1	..	..	..
21. Glanders	..	..	..	..	..	..	..	..	..	..
22. Malignant pustule	..	..	..	..	..	..	..	..	..	..
23. Hydrophobia	..	..	..	..	..	..	..	..	..	..
24. Actinomycosis	..	..	..	..	..	..	..	..	..	..
24a. Trichinosis	..	..	..	..	..	..	..	..	..	..
25. Pellagra	..	..	..	..	..	..	..	..	..	..
26. Tuberculosis of larynx	8	..	..	..	..	..	..	..	..	..
27. Tuberculosis of lungs	1,053	4	3	1	5	..	13	6	29	107
28. Tubercular meningitis	87	17	15	14	10	3	59	15	5	2
29. Abdominal tuberculosis	30	8	1	..	..	..	9	1	2	2
30. Pott's disease	12	..	..	..	..	..	..	4	2	..
31. Cold abscess	2	..	..	..	..	..	..	..	..	..
32. White swelling	7	..	..	..	1	1	2	1	1	2
33. Tuberculosis of other organs	5	1	2.	..	..	..	3	..	1	..
34. General tuberculosis	10	4	..	..	..	..	4	..	..	1
35. Scrofula	..	..	..	..	..	..	..	..	..	..
36. Syphilis	14	11	..	..	..	..	11	..	..	..
37. Gonorrhœa (adults)	..	..	..	..	..	..	..	..	..	..
38. Gonorrhœa (children)	..	..	..	..	..	..	..	..	..	..
39. Cancers, etc., of the mouth	7	..	..	..	..	..	..	..	..	..
40. Cancer of stomach, liver	240	..	..	..	..	..	..	..	..	..
41. Cancer of intestines, rectum	72	..	..	..	..	..	..	..	..	1
42. Cancer of female genital organs	145	..	..	..	..	..	..	..	..	..
43. Cancer of the breast	95	..	..	..	..	..	..	..	..	..
44. Cancer of the skin	3	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
..	1	2	..	..	1	..	..	1	..	..	..	..	..	3
..	..	1	2	7	3	5	4	5	5	8	4	2	3	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
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1	3	..	..	1	..	..	3	1	2	4	2	5	1	2
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1	1	..	..	1	2	2	3	2	1	..	2	..	3	1
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..	4	1	2	..	1	..	..	..	..	..	..	..	..	..
167	173	157	126	90	52	39	39	18	20	10	3	..	4	46
3	1	1	..	1	..	..	..	..	..	..	..	..	..	4
3	3	2	1	1	2	4	..	..	..	..	..	..	..	2
1	1	..	1	..	1	1	..	1	..	..	..	..	..	1
..	..	..	..	2	..	..	..	..	..	..	..	..	..	..
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	2	..	..	..	..	1	1	..	..	..	..	..	..	..
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1	3	3	6	25	21	33	37	40	34	19	11	2	5	3
..	4	2	3	5	4	10	10	10	10	8	2	3	..	..
..	2	6	12	20	24	16	15	24	10	7	6	2	1	5
..	..	2	6	21	12	6	14	9	10	7	5	2	1	1
..	..	..	..	1	..	..	..	..	..	2	..	..	..	..

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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
45. Cancer of other organs and unspecified	70	..	..	..	1	..	1	1	..	..
46. Other tumors (except of female genital organs)	8	1	..	..	..	..	1	..	..	..
47. Acute articular rheumatism	87	1	1	..	3	6	11	10	5	5
48. Chronic rheumatism and gout	21	..	..	..	..	1	1	3	1	..
49. Scurvy	1	1	..	..	..	..	1	..	..	..
50. Diabetes	122	..	..	..	..	..	..	..	4	..
51. Exophthalmic goitre	3	..	..	..	..	..	..	..	..	..
52. Addison's disease	..	..	..	..	..	..	..	..	..	..
53. Leukæmia	1	..	..	..	..	..	..	..	..	..
54. Anæmia, chlorosis	23	1	..	..	..	..	1	1	..	3
55. Other general diseases	..	..	..	..	..	..	..	..	..	..
56. Alcoholism, acute and chronic	24	..	..	..	..	..	..	..	..	..
57. Lead poisoning	..	..	..	..	..	..	..	..	..	..
58. Other chronic poisonings of occupation	..	..	..	..	..	..	..	..	..	..
59. Other chronic poisonings	2	..	..	..	..	..	..	..	..	..
II.—Diseases of Nervous System and Organs of Sense.										
60. Encephalitis	..	..	..	..	..	..	..	..	..	..
61. Simple meningitis	135	29	24	11	11	8	83	17	11	4
61a. (Of which) Cerebro-spinal meningitis	79	8	11	8	7	8	42	10	9	3
62. Locomotor ataxia	6	..	..	..	..	..	..	..	..	..
63. Other diseases of spinal cord	25	..	..	..	1	..	1	2	..	1
64. Apoplexy, congestion of brain	549	3	..	..	..	..	3	..	1	..
65. Softening of brain	12	..	..	..	..	..	..	..	..	..
66. Paralysis unspecified	31	..	..	..	..	..	..	..	..	..
67. General paresis	16	..	..	..	..	..	..	..	..	..
68. Other forms of insanity	12	..	..	..	..	..	..	..	..	1
69. Epilepsy	22	..	1	..	1	..	2	2	1	..
70. Convulsions (not puerperal)	..	..	..	..	..	..	..	..	..	..
71. Convulsions of infants	90	75	10	2	2	1	90	..	..	..
72. Tetanus, trismus	9	6	..	..	..	..	6	..	..	..
73. Chorea	2	..	..	..	..	..	..	2	..	..
74. Other nervous diseases	25	1	..	..	1	..	2	..	2	2
75. Diseases of the eyes	1	..	..	1	..	..	1	..	..	..
76. Diseases of the ears	13	2	1	1	..	..	4	1	1	1
III.—Diseases of Circulatory System.										
77. Pericarditis	7	..	..	..	..	..	..	1	1	1
78. Acute endocarditis	173	2	..	1	2	1	6	3	4	4



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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.
..	3	4	2	8	5	11	8	10	5	7	2	2	1	..
..	..	..	..	1	..	2	3	..	..	1	..	..	..	..
3	6	5	3	4	6	7	3	5	8	3	2	..	1	2
..	..	2	2	..	2	..	..	..	5	2	3	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	4	4	7	6	8	10	12	16	24	13	8	3	.	1
1	..	..	..	..	..	..	1	1	..	..	..	..	..	..
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..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
2	5	2	1	2	1	1	2	1	1	..	..	..	..	2
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..	3	3	6	6	3	3	..	..	..	..	..	..	..	..
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5	9	2	1	1	..	1	1	..	..	..	..	..	..	5
5	7	1	1	..	..	1	..	..	..	..	..	..	..	2
..	..	..	..	2	..	..	3	..	..	1	..	..	..	..
1	1	2	1	..	2	2	4	2	4	1	1	..	..	..
1	2	9	11	25	32	56	64	85	65	80	60	30	25	13
..	..	1	..	..	..	..	1	1	1	..	1	3	4	..
1	..	1	1	1	1	3	1	5	4	3	5	1	4	1
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2	1	3	..	4	2	1	1	1	1	1	..	..	..	..
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5	8	11	11	13	8	12	15	14	18	19	14	5	3	4

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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
III.—Diseases of Circulatory System.										
77. Pericarditis	..	..	..	..	..	..	..	..	..	..
78. Acute endocarditis	4	..	..	..	..	..	..	..	..	1
79. Organic heart diseases	140	1	1	..	1	1	4	4	5	3
80. Angina pectoris	1	..	..	..	..	..	..	..	1	..
81. Diseases of arteries, aneurism, etc	5	..	..	..	..	..	..	..	..	..
82. Embolism, thrombosis	2	..	..	..	..	..	..	..	..	..
83. Diseases of veins (hæmorrhoids, varices, phlebitis, etc.)	..	..	..	..	..	..	..	..	..	..
84. Diseases of lymphatics (lymphangitis, etc.)	..	..	..	..	..	..	..	..	..	..
85. Hæmorrhage	1	1	..	..	..	..	1	..	..	..
86. Other diseases of circulatory system	..	..	..	..	..	..	..	..	..	..
IV.—Diseases of Respiratory System.										
87. Diseases of nasal fossae	..	..	..	..	..	..	..	..	..	..
88. Diseases of the larynx	2	..	..	..	..	..	..	..	..	..
89. Diseases of thyroid gland	1	..	..	..	..	..	..	..	..	..
90. Acute bronchitis	29	17	3	1	..	..	21	1	..	..
91. Chronic bronchitis	3	..	..	..	..	..	..	..	..	..
92. Broncho-pneumonia	97	33	20	3	2	3	61	4	1	..
93. Pneumonia	124	19	9	4	1	3	36	3	4	2
94. Pleurisy	5	1	..	..	..	..	1	..	..	..
95. Congestion of lungs, pulmonary apoplexy	..	..	..	..	..	..	..	..	..	..
96. Gangrene of lung	..	..	..	..	..	..	..	..	..	..
97. Asthma	..	..	..	..	..	..	..	..	..	..
98. Pulmonary emphysema	2	..	..	..	..	..	..	..	..	..
99. Other diseases of respiratory system (phthisis excepted)	..	..	..	..	..	..	..	..	..	..
V.—Diseases of Digestive System.										
100. Diseases of mouth and adnexa	1	1	..	..	..	..	1	..	..	..
101. Diseases of pharynx	..	..	..	..	..	..	..	..	..	..
102. Diseases of œsophagus	..	..	..	..	..	..	..	..	..	..
103. Ulcer of stomach	5	..	..	..	..	..	..	..	..	..
104. Other diseases of stomach (cancer excepted)	5	..	..	..	..	..	..	..	..	..
105. Diarrhœa and enteritis (under two years)	170	156	14	..	..	..	170	..	..	..
(Of which) chronic diarrhœa	..	..	..	..	..	..	..	..	..	..
106. Diarrhœa and enteritis (two years and over)	18	..	..	1	3	..	4	3	..	..
107. Intestinal parasites	..	..	..	..	..	..	..	..	..	..
108. Hernia, intestinal obstruction	17	3	..	..	..	..	3	..	..	..
109. Other diseases of intestines	..	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
18	29	30	41	46	51	75	80	94	101	79	58	33	17	17	..
..	..	..	1	2	5	..	2	5	7	7	2	1	..	..	..
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2	2	..	3	3	1	1	5	4	6	6	3	..	–	..	..
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1	..	..	..	..	1	..	4	7	6	10	7	9	3	6	..
3	..	2	3	4	..	7	6	14	18	8	13	10	4	2	..
7	4	1	8	3	5	9	20	19	17	24	15	16	5	8	..
31	27	43	33	39	48	49	63	66	55	43	36	15	14	20	..
2	1	3	4	1	..	2	2	1	1	2	..	1	..	1	..
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2	2	1	1	1	..	2	1	1	1	2	..	1	..	1	..
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2	4	1	1	4	2	1	1	2	..	..	..	1	1	..	..
..	2	3	2	2	3	3	6	2	8	2	5	6	1	1	..
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1	4	8	6	11	5	8	12	7	7	5	5	3	..	1	..
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2	8	12	12	20	20	16	20	14	13	3	7	2	1	1	..

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Cause of Death.	All ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
110. Acute yellow atrophy of liver...	..	..	..	..	..	..	..	..	..	..
111. Hydatid tumor of liver.....	..	..	..	..	..	..	..	..	..	..
112. Cirrhosis of liver.....	13	..	..	..	..	..	..	..	..	..
113. Biliary calculi.....	1	..	..	..	..	..	..	..	..	..
114. Other diseases of liver.....	1	..	1	..	..	..	1	..	..	..
115. Diseases of spleen.....	..	..	..	..	..	..	..	..	..	..
116. Simple peritonitis (non-puerperal)	3	..	..	..	..	1	1	..	..	..
117. Other diseases of digestive system (except tuberculosis and cancer).....	..	..	..	..	..	..	..	..	..	..
118. Appendicitis and iliac abscess..	17	..	..	..	..	..	..	3	3	..
VI.—Diseases of Genito-urinary System.										
119. Acute nephritis.....	18	..	..	..	1	..	1	1	1	..
120. Bright's disease.....	118	..	..	..	..	..	..	..	1	3
121. Other diseases of kidneys and adnexa.....	..	..	..	..	..	..	..	..	..	..
122. Urinary calculus.....	..	..	..	..	..	..	..	..	..	..
123. Diseases of bladder.....	..	..	..	..	..	..	..	..	..	..
124. Diseases of urethra, urinary abscess, etc.....	..	..	..	..	..	..	..	..	..	..
125. Diseases of the prostate.....	..	..	..	..	..	..	..	..	..	..
126. Non-venereal diseases of male genital organs.....	..	..	..	..	..	..	..	..	..	..
127. Metritis	..	..	..	..	..	..	..	..	..	..
128. Uterine hæmorrhage (not puerperal).....	..	..	..	..	..	..	..	..	..	..
129. Uterine tumor (not cancer).....	4	..	..	..	..	..	..	..	..	..
130. Other diseases of uterus.....	..	..	..	..	..	..	..	..	..	..
131. Ovarian cysts and tumors	2	..	..	..	..	..	..	..	..	..
132. Other diseases of female genital organs.....	2	..	..	..	..	..	..	..	..	..
133. Diseases of breast (not puerperal, nor cancer).....	..	..	..	..	..	..	..	..	..	..
VII.—Puerperal Diseases.										
134. Accidents of pregnancy.....	5	..	..	..	..	..	..	..	..	..
135. Puerperal hæmorrhage.....	1	..	..	..	..	..	..	..	..	..
136. Other accidents of labor.....	3	..	..	..	..	..	..	..	..	..
137. Puerperal septicæmia.....	20	..	..	..	..	..	..	..	..	2
138. Puerperal albuminuria and convulsions.....	3	..	..	..	..	..	..	..	..	..
139. Puerperal phlegmasia alba dolens	..	..	..	..	..	..	..	..	..	..
140. Other accidents of parturition, sudden death.....	8	..	..	..	..	..	..	..	..	..
141. Puerperal diseases of breast....	..	..	..	..	..	..	..	..	..	..



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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.
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1	..	3	..	..	1	1	4	..	..	1	..	..	..	..
1	1	4	4	2	..	1	..	1	..	1	..	..	..	..
1	6	4	9	8	15	11	9	10	14	4	10	11	2	7
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3	7	6	2	..	..	..	..	..	..	..	..	..	..	1
1	1	..	1	..	..	..	..	..	..	..	..	..	..	..
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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
VIII.—Diseases of Skin and Cellular Tissue.										
142. Gangrene	5	..	..	..	..	..	..	..	..	..
143. Carbuncle	1	..	..	..	..	..	..	..	..	1
144. Phlegmon, acute abscess	1	1	..	..	..	..	1	..	..	..
145. Other diseases of skin and adnexa	1	1	..	..	..	..	1	..	..	..
IX.—Diseases of Locomotory System										
146. Diseases of bones (non-tuberculous)	4	1	1	..	..	1	3	..	..	..
147. Arthritis, other diseases of joints (except tuberculosis and rheumatism)	..	..	..	..	..	..	..	..	..	..
148. Amputation	..	..	..	..	..	..	..	..	..	..
149. Other diseases of organs of locomotion	..	..	..	..	..	..	..	..	..	..
X.—Malformations.										
150. Congenital malformations	11	10	..	..	..	1	11	..	..	..
XI.—Diseases of Infancy.										
151. Congenital debility, icterus and sclerema	72	72	..	..	..	..	72	..	..	..
151a. Injury during birth	3	3	..	..	..	..	3	..	..	..
152. Other diseases peculiar to infancy	2	2	..	..	..	..	2	..	..	..
153. Neglect	..	..	..	..	..	..	..	..	..	..
XII.—Diseases of Old Age.										
154. Senile debility	43	..	..	..	..	..	..	..	..	..
XIII.—External Causes.										
155. Suicide by poison	2	..	..	..	..	..	..	..	..	..
156. Suicide by asphyxia	2	..	..	..	..	..	..	..	..	..
157. Suicide by hanging or strangulation	..	..	..	..	..	..	..	..	..	..
158. Suicide by drowning	1	..	..	..	..	..	..	..	..	..
159. Suicide by firearms	1	..	..	..	..	..	..	..	..	..
160. Suicide by cutting instruments	1	..	..	..	..	..	..	..	..	..
161. Suicide by precipitation from height	..	..	..	..	..	..	..	..	..	..
162. Suicide by crushing	..	..	..	..	..	..	..	..	..	..
163. Suicide by other methods	..	..	..	..	..	..	..	..	..	..
164. Fractures	..	..	..	..	..	..	..	..	..	..
165. Dislocations	..	..	..	..	..	..	..	..	..	..
166. Other accidental injuries	27	3	..	1	..	..	4	3	1	1
167. Burn, by fire, scald	17	2	..	2	1	4	9	6	..	1
168. Burning by corrosive substances	..	..	..	..	..	..	..	..	..	..
169. Sunstroke	1	..	..	..	..	1	1	..	..	..
170. Freezing	..	..	..	..	..	..	..	..	..	..



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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.
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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
171. Electrical shock	..	..	..	..	..	..	..	..	..	..
172. Accidental drowning	8	..	1	..	..	..	1	..	..	1
173. Inanition (starvation)	..	..	..	..	..	..	..	..	..	..
174. Inhalation of noxious gas, not suicidal	4	..	1	..	..	..	1	..	2	1
175. Other acute poisoning	1	..	..	..	..	..	..	..	..	1
176. Other external violence	5	1	..	..	..	..	1	..	..	..
(Of which) a. Homicide, by blows	1	..	..	..	..	..	..	..	..	..
b. Homicide, by sharp instruments	..	..	..	..	..	..	..	..	..	..
c. Homicide, by gunshot	..	..	..	..	..	..	..	..	..	..
d. Homicide, by poison	..	..	..	..	..	..	..	..	..	..
e. Homicide, by other methods	..	..	..	..	..	..	..	..	..	..
XIV.—Ill-defined or not Specified Causes.										
177. Dropsy	..	..	..	..	..	..	..	..	..	..
178. Sudden death, not puerperal	..	..	..	..	..	..	..	..	..	..
179. Ill-defined causes	16	13	3	..	..	..	16	..	..	..
I.—General diseases	350	21	19	10	16	10	76	26	6	12
a. Tuberculous diseases	145	8	4	1	2	1	16	4	4	9
b. Cancer	77	..	..	..	..	..	..	..	..	..
II.—Diseases of nervous system and organs of sense	152	33	7	1	2	2	45	3	3	2
III.—Diseases of circulatory system	153	2	1	..	1	1	5	4	6	4
IV.—Diseases of respiratory system	263	70	32	8	3	6	119	8	5	2
V.—Diseases of digestive system	251	160	15	1	3	1	180	6	3	..
VI.—Diseases of genito-urinary system	144	..	..	..	1	..	1	1	2	3
VII.—Puerperal diseases	40	..	..	..	..	..	..	..	..	2
VIII.—Diseases of the skin and cellular tissue	8	2	..	..	..	..	2	..	..	1
IX.—Diseases of locomotory system	4	1	1	..	..	1	3	..	..	..
X.—Malformations	11	10	..	..	..	1	11	..	..	..
XI.—Diseases of infancy	77	77	..	..	..	..	77	..	..	..
XII.—Diseases of old age	43	..	..	..	..	..	..	..	..	..
XIII.—External causes	70	6	2	3	1	5	17	9	3	5
a. Suicide	7	..	..	..	..	..	..	..	..	..
b. Homicide	1	..	..	..	..	..	..	..	..	..
c. Accident	62	6	2	3	1	5	17	9	3	5
XIV.—Causes ill-defined	16	13	3	..	..	..	16	..	..	..
Total females	1,582	395	80	23	27	27	552	57	28	31

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
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18	26	22	33	19	23	17	13	16	15	18	6	3	1	7	..
17	23	20	20	10	9	4	3	3	2	1	..	..	..	5	..
..	..	..	8	6	7	11	8	8	11	11	5	1	1	..	..
1	3	3	5	6	12	7	11	13	15	7	10	5	1	2	..
3	3	5	9	5	11	14	13	11	19	14	15	7	5	3	..
2	7	6	6	9	7	10	11	13	16	18	14	5	5	10	..
2	1	7	4	3	4	4	6	8	5	6	5	6	1	4	..
3	8	9	13	15	15	12	9	11	14	5	10	11	2	8	..
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38	68	69	81	59	73	67	64	81	88	80	69	50	27	42	..

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Deaths of Males by Age, and Cause of Death,

Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
I.—General Diseases.											
1. Typhoid fever	10	9	..	..	..	..	..	..	..	..	..
2. Typhus fever	..	..	..	..	..	..	..	..	..	..	..
3. Relapsing fever	..	..	..	..	..	..	..	..	..	..	..
4. Malarial fever	1	1	..	..	..	..	..	..	..	..	..
5. Small-pox	..	..	..	..	..	..	..	..	..	..	..
6. Measles	12	5	1	2	..	1	..	4	1	..	..
7. Scarlet fever	6	1	..	..	..	..	..	..	..	1	..
8. Whooping cough	10	4	3	1	..	..	..	4	..	..	..
9. Diphtheria and croup	28	15	2	2	..	4	1	9	3	..	1
10. Influenza	..	..	..	..	..	..	..	..	..	..	..
11. Miliary fever	..	..	..	..	..	..	..	..	..	..	..
12. Asiatic cholera	..	..	..	..	..	..	..	..	..	..	..
13. Cholera nostras	..	..	..	..	..	..	..	..	..	..	..
14. Dysentery	4	1	..	..	..	..	..	..	..	..	..
15. Plague	..	..	..	..	..	..	..	..	..	..	..
16. Yellow fever	..	..	..	..	..	..	..	..	..	..	..
17. Leprosy	..	..	..	..	..	..	..	..	..	..	..
18. Erysipelas	3	2	..	..	..	..	..	..	..	..	..
19. Other epidemic diseases	..	..	..	..	..	..	..	..	..	..	..
20. Pyæmia, septicæmia	2	2	1	..	..	..	..	1	..	..	..
21. Glanders	..	..	..	..	..	..	..	..	..	..	..
22. Malignant pustule	..	..	..	..	..	..	..	..	..	..	..
23. Hydrophobia	..	..	..	..	..	..	..	..	..	..	..
24. Actinomycosis	..	..	..	..	..	..	..	..	..	..	..
24a. Trichinosis	..	..	..	..	..	..	..	..	..	..	..
25. Pellagra	..	..	..	..	..	..	..	..	..	..	..
26. Tuberculosis of larynx	2	2	..	..	..	..	..	..	..	..	..
27. Tuberculosis of lungs	190	139	3	2	..	..	..	5	..	1	2
28. Tubercular meningitis	8	4	..	1	1	..	..	2	..	1	..
29. Abdominal tuberculosis	1	1	..	..	..	..	..	..	..	..	..
30. Pott's disease	..	..	..	..	..	..	..	..	..	..	..
31. Cold abscess	..	..	..	..	..	..	..	..	..	..	..
32. White swelling	..	..	..	..	..	..	..	..	..	..	..
33. Tuberculosis of other organs	2	1	..	..	..	..	..	..	..	..	..



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RICHMOND.

for Year ending December 31, 1906.

20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
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Cause of Death.	Total Both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
34. General tuberculosis...	..	..	..	..	..	..	..	..	..	..	..
35. Scrofula.....	..	..	..	..	..	..	..	..	..	..	..
36. Syphilis.....	4	1	..	..	..	..	..	..	..	..	..
37. Gonorrhœa (adults)....	..	..	..	..	..	..	..	..	..	..	..
38. Gonorrhœa (children) .	..	..	..	..	..	..	..	..	..	..	..
39. Cancers, etc., of the mouth.....	3	3	..	..	..	..	..	..	..	..	..
40. Cancer of stomach, liver.....	18	9	..	..	..	..	..	..	..	..	..
41. Cancer of intestines, rectum.....	8	5	..	..	..	..	..	..	..	..	..
42. Cancer of female genital organs.....	8	..	..	..	..	..	..	..	..	..	..
43. Cancer of the breast...	8	..	..	..	..	..	..	..	..	..	..
44 Cancer of the skin.....	3	3	..	..	..	..	..	..	..	..	..
45. Cancer of other organs and unspecified	7	3	..	..	..	..	..	..	..	..	..
46. Other tumors (except of female genital organs)	1	..	..	..	..	..	..	..	..	..	..
47. Acute articular rheumatism	8	5	..	..	..	..	..	..	..	1	1
48. Chronic rheumatism and gout.....	1	..	..	..	..	..	..	..	..	..	..
49. Scurvy.....	..	..	..	..	..	..	..	..	..	..	..
50. Diabetes.....	8	4	..	..	..	..	..	..	..	1	..
51. Exophthalmic goitre ..	..	..	..	..	..	..	..	..	..	..	..
52. Addison's disease.....	1	1	..	..	..	..	..	..	..	..	..
53. Lukæmia.....	1	1	..	..	..	..	..	..	..	..	..
54. Anæmia, chlorosis.....	1	1	..	..	..	..	..	..	..	..	..
55. Other general diseases.	..	..	..	..	..	..	..	..	..	..	..
56. Alcoholism, acute and chronic.....	9	8	..	..	..	..	..	..	..	..	..
57. Lead poisoning.....	..	..	..	..	..	..	..	..	..	..	..
58. Other chronic poisonings of occupation.	..	..	..	..	..	..	..	..	..	..	..
59. Other chronic poisonings	..	..	..	..	..	..	..	..	..	..	..
II.—Diseases of Nervous System and Organs of Sense.											
60. Encephalitis.....	..	..	..	..	..	..	..	..	..	..	..
61. Simple meningitis.....	24	16	2	..	1	..	..	3	4	2	2
61a. (of which) Cerebro-spinal meningitis.	12	8	..	..	1	..	..	1	3	1	2
62. Locomotor ataxia.....	2	1	..	..	..	..	..	..	..	..	..
63. Other diseases of spinal cord.....	2	1	..	..	..	..	..	..	..	..	..
64. Apoplexy, congestion of brain.....	64	33	..	..	..	..	..	..	..	..	..
65. Softening of brain.....	1	1	..	..	..	..	..	..	..	..	..
66. Paralysis, unspecified..	8	4	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
67. General paresis.....	7	6	..	..	..	..	..	..	..	..	..
68. Other forms of insanity	..	..	..	..	..	..	..	..	..	..	..
69. Epilepsy.....	4	3	..	..	1	..	1	2	1	..	..
70. Convulsions (not puerperal).....	1	..	..	..	..	..	..	..	..	..	..
71. Convulsions of infants.	4	2	2	..	..	..	..	2	..	..	..
72. Tetanus, trismus.....	3	3	1	..	..	..	..	1	1	..	..
73. Chorea	1	..	..	..	..	..	..	..	..	..	..
74. Other nervous diseases	3	1	1	..	..	..	..	1	..	..	..
75. Diseases of the eyes..	..	..	..	..	..	..	..	..	..	..	..
76. Diseases of the ears....	2	2	..	..	1	..	..	1	..	..	..
III.—Diseases of Circulatory System.											
77. Pericarditis.....	1	1	..	..	..	..	..	..	..	..	..
78. Acute endocarditis.....	6	6	..	..	..	..	..	..	..	..	..
79. Organic heart diseases.	111	57	..	..	..	..	..	..	..	..	..
80. Angina pectoris.....	4	2	..	..	..	..	..	..	..	..	..
81. Diseases of arteries, aneurism, etc.....	15	11	..	..	..	..	..	..	..	..	..
82. Embolism, thrombosis.	4	1	..	..	..	..	..	..	..	..	..
83. Diseases of veins (hæmorrhoids, varices, phlebitis, etc.)	1	..	..	..	..	..	..	..	..	..	..
84. Diseases of lymphatics (lymphangitis, etc.).....	..	..	..	..	..	..	..	..	..	..	..
85. Hæmorrhage	1	1	1	..	..	..	..	1	..	..	..
86. Other diseases of circulatory system...	..	..	..	..	..	..	..	..	..	..	..
IV.—Diseases of Respiratory System.											
87. Diseases of nasal fossae	..	..	..	..	..	..	..	..	..	..	..
88. Diseases of the larynx.	1	..	..	..	..	..	..	..	..	..	..
89. Diseases of thyroid gland.....	..	..	..	..	..	..	..	..	..	..	..
90. Acute bronchitis.....	13	8	5	..	..	..	..	5	..	..	..
91. Chronic bronchitis.....	5	3	..	..	..	..	..	..	..	..	..
92. Broncho-pneumonia ...	50	31	8	6	1	..	..	15	4	..	..
93. Pneumonia.....	96	56	3	5	1	2	..	11	..	..	1
94. Pleurisy	4	2	..	..	..	..	..	..	..	..	1
95. Congestion of lungs, pulmonary apoplexy	6	3	..	..	..	..	..	..	..	..	..
96. Gangrene of lung.....	1	1	..	..	..	..	..	..	..	..	..
97. Asthma.....	2	2	..	..	..	..	..	..	..	..	..
98. Pulmonary emphysema	..	..	..	..	..	..	..	..	..	..	..
99. Other diseases of respiratory system (phthisis excepted)	2	2	1	..	..	..	..	1	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
V.—Diseases of Digestive System											
100. Diseases of mouth and adnexa	..	..	..	..	..	..	..	..	..	..	..
101. Diseases of pharynx	..	..	..	..	..	..	..	..	..	..	..
102. Diseases of œsophagus	1	1	..	..	..	..	..	..	..	..	..
103. Ulcer of stomach	1	..	..	..	..	..	..	..	..	..	..
104. Other diseases of stomach (cancer excepted)	7	4	..	..	1	..	..	1	1	..	..
105. Diarrhœa and enteritis (under two years)	161	85	76	9	..	..	..	85	..	..	..
(Of which) chronic diarrhœa	..	..	..	..	..	..	..	..	..	..	..
106. Diarrhœa and enteritis (two years and over)	12	6	..	..	..	1	..	1	..	1	..
107. Intestinal parasites	..	..	..	..	..	..	..	..	..	..	..
108. Hernia, intestinal obstruction	10	4	..	..	..	..	..	..	..	..	..
109. Other diseases of intestines	1	..	..	..	..	..	..	..	..	..	..
110. Acute yellow atrophy of liver	1	..	..	..	..	..	..	..	..	..	..
111. Hydatid tumor of liver	..	..	..	..	..	..	..	..	..	..	..
112. Cirrhosis of liver	24	15	..	..	..	..	..	..	..	..	..
113. Biliary calculi	..	..	..	..	..	..	..	..	..	..	..
114. Other diseases of liver	6	4	..	..	..	..	..	..	..	..	..
115. Diseases of spleen	..	..	..	..	..	..	..	..	..	..	..
116. Simple peritonitis (non-puerperal)	..	..	..	..	..	..	..	..	..	..	..
117. Other diseases of digestive system (except tuberculosis and cancer)	1	..	..	..	..	..	..	..	..	..	..
118. Appendicitis and iliac abscess	12	8	..	..	..	..	..	..	..	1	2
VI.—Diseases of Genito-urinary System.											
119. Acute nephritis	9	3	..	..	..	..	..	..	..	..	..
120. Bright's disease	95	46	..	..	..	..	..	..	..	..	..
121. Other diseases of kidneys and adnexa	3	2	..	..	..	..	..	..	..	..	..
122. Urinary calculus	..	..	..	..	..	..	..	..	..	..	..
123. Diseases of bladder	3	3	..	..	..	..	..	..	..	..	..
124. Diseases of urethra, urinary abscess, etc.	..	..	..	..	..	..	..	..	..	..	..
125. Diseases of the prostate	..	..	..	..	..	..	..	..	..	..	..
126. Non-venereal diseases of male genital organs	..	..	..	..	..	..	..	..	..	..	..
127. Metritis	..	..	..	..	..	..	..	..	..	..	..
128. Uterine hæmorrhage (not puerperal)	1	..	..	..	..	..	..	..	..	..	..
129. Uterine tumor (not cancer)	1	..	..	..	..	..	..	..	..	..	..
130. Other diseases of uterus	..	..	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
131. Ovarian cysts and tumors	2	..	..	..	..	..	..	..	..	..	..
132. Other diseases of female genital organs	3	..	..	..	..	..	..	..	..	..	..
133. Diseases of breast (not puerperal, nor cancer)	..	..	..	..	..	..	..	..	..	..	..
VII.—Puerperal Diseases.											
134. Accidents of pregnancy	2	..	..	..	..	..	..	..	..	..	..
135. Puerperal hæmorrhage	..	..	..	..	..	..	..	..	..	..	..
136. Other accidents of labor	1	..	..	..	..	..	..	..	..	..	..
137. Puerperal septicæmia	7	..	..	..	..	..	..	..	..	..	..
138. Puerperal albuminuria and convulsions	5	..	..	..	..	..	..	..	..	..	..
139. Puerperal phlegmasia alba dolens	..	..	..	..	..	..	..	..	..	..	..
140. Other accidents of parturition, sudden death	1	..	..	..	..	..	..	..	..	..	..
141. Puerperal diseases of breast	..	..	..	..	..	..	..	..	..	..	..
VIII.—Diseases of Skin and Cellular Tissue.											
142. Gangrene	4	1	..	..	..	..	..	..	..	..	..
143. Carbuncle	1	..	..	..	..	..	..	..	..	..	..
144. Phlegmon, acute abscess	1	1	..	..	..	..	..	..	..	..	..
145. Other diseases of skin and adnexa	..	..	..	..	..	..	..	..	..	..	..
IX.—Diseases of Locomotory System.											
146. Diseases of bones (non-tuberculous)	7	4	1	..	..	..	..	1	..	..	..
147. Arthritis, other diseases of joints (except tuberculosis and rheumatism)	..	..	..	..	..	..	..	..	..	..	..
148. Amputation	..	..	..	..	..	..	..	..	..	..	..
149. Other diseases of organs of locomotion	..	..	..	..	..	..	..	..	..	..	..
X.—Malformations.											
150. Congenital malformations	6	5	3	1	..	1	..	5	..	..	..
XI.—Diseases of Infancy.											
151. Congenital debility, icterus and sclerema	86	47	47	..	..	..	..	47	..	..	..
151a. Injury during birth	2	1	1	..	..	..	..	1	..	..	..
152. Other diseases peculiar to infancy	1	..	..	..	..	..	..	..	..	..	..
153. Neglect	..	..	..	..	..	..	..	..	..	..	..
XII.—Diseases of Old Age.											
154. Senile debility	41	25	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored	Chinese.
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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
XIII.—External Causes.											
155. Suicide by poison.....	3	2	..	..	..	..	..	..	..	..	..
156. Suicide by asphyxia ..	..	..	..	..	..	..	..	..	..	..	..
157. Suicide by hanging or strangulation...	2	1	..	..	..	..	..	..	..	..	..
158. Suicide by drowning..	..	.	..	..	..	..	..	..	..	..	..
159. Suicide by firearms...	8	8	..	..	..	..	..	..	..	..	..
160. Suicide by cutting instruments	..	..	..	..	..	..	..	..	..	..	..
161. Suicide by precipitation from height...	..	..	..	..	..	..	..	..	..	..	..
162. Suicide by crushing...	..	..	..	..	..	..	..	..	..	..	..
163. Suicide by other methods.....	..	..	..	..	..	..	..	..	..	..	..
164. Fractures.....	6	6	..	..	..	..	..	..	..	..	..
165. Dislocations.....	..	..	..	..	..	..	..	..	..	..	..
166. Other accidental injuries.....	32	31	..	..	..	..	..	..	2	1	..
167. Burn, by fire, scald...	5	3	..	..	1	..	..	1	..	..	..
168. Burning by corrosive substances.....	..	..	..	..	..	..	..	..	..	..	..
169. Sunstroke.....	2	..	..	..	..	..	..	..	..	..	..
170. Freezing.....	3	3	..	..	..	..	..	..	..	..	..
171. Electrical shock	1	1	..	..	..	..	..	..	..	..	..
172. Accidental drowning..	42	42	..	1	..	..	..	1	3	1	2
173. Inanition (starvation).	..	..	..	..	..	..	..	..	..	..	..
174. Inhalation of noxious gas, not suicidal.....	2	..	..	..	..	..	..	..	..	..	..
175. Other acute poisoning	..	..	..	..	..	..	..	..	..	..	..
176. Other external violence	6	6	2	..	..	..	..	2	..	..	..
(Of which)											
a. Homicide, by blows.....	1	2	..	..	..	..	..	..	..	..	..
b. Homicide, by sharp instruments	2	1	..	..	..	..	..	..	..	..	..
c. Homicide, by gunshot	1	1	..	..	..	..	..	..	..	..	..
d. Homicide, by poison.....	..	..	..	..	..	..	..	..	..	..	..
e. Homicide, by other methods.....	..	..	..	..	..	..	..	..	..	..	..
XIV.—Ill-defined or Not Specified Causes.											
177. Dropsy.....	..	..	..	..	..	..	..	..	..	..	..
178. Sudden death, not puerperal.....	..	..	..	..	..	..	..	..	..	..	..
179. Ill-defined causes	40	15	15	..	..	..	..	15	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
I.—General diseases...	368	231	10	8	1	5	1	25	4	5	4
a. Tuberculous diseases ...	203	147	3	3	1	..	..	7	..	2	2
b. Cancer.....	55	23	..	..	..	..	..	..	..	..	..
II.—Diseases of nervous system and organs of sense.	126	73	6	..	3	..	1	10	6	2	2
III.—Diseases of circulatory system...	143	79	1	..	..	..	..	1	..	..	..
IV.—Diseases of respiratory system....	180	108	17	11	2	2	..	32	4	..	2
V.—Diseases of digestive system.....	237	127	76	9	1	1	..	87	1	2	2
VI.—Diseases of genito-urinary system..	117	54	..	..	..	..	..	..	..	..	..
VII.—Puerperal diseases.	16	..	..	..	..	..	..	..	..	..	..
VIII.—Diseases of skin and cellular tissue	6	2	..	..	..	..	..	..	..	..	..
IX.—Diseases of locomotory system..	7	4	1	..	..	..	..	1	..	..	..
X.—Malformations.....	6	5	3	1	..	1	..	5	..	..	..
XI.—Diseases of infancy	89	48	48	..	..	..	..	48	..	..	..
XII.—Diseases of old age.	41	25	..	..	..	..	..	..	..	..	..
XIII.—External causes....	112	103	2	1	1	..	..	4	5	2	2
a. Suicide.....	13	11	..	..	..	..	..	..	..	..	..
b. Homicide.....	4	4	..	..	..	..	..	..	..	..	..
c. Accident.....	95	88	2	1	1	..	..	4	5	2	2
XIV.—Causes ill defined ..	40	15	15	..	..	..	..	15	..	..	..
Total males.....		874	179	30	8	9	2	228	20	11	12
Total females ...		614	161	36	4	6	8	215	14	10	10
Total both sexes.		1,488	340	66	12	15	10	443	34	21	22

BOROUGH OF

Deaths of Females by Age and Cause of Death

Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
I.—General Diseases.										
1. Typhoid fever.....	1	..	..	..	..	..	..	..	..	..
2. Typhus fever.....	..	..	..	..	..	..	..	..	..	..
3. Relapsing fever.....	..	..	..	..	..	..	..	..	..	..
4. Malarial fever.....	..	..	..	..	..	..	..	..	..	..
5. Small pox.....	..	..	..	..	..	..	..	..	..	..

Digitized by Google

20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
18	19	22	33	28	18	13	12	6	12	5	4	3	..	4	1
14	14	19	29	23	16	7	7	3	2	2	..	..	..	4	1
..	..	..	1	..	..	4	4	1	5	3	3	2	..	..	..
2	1	3	2	5	4	3	..	5	7	12	4	2	3	..	..
4	1	2	2	3	4	6	6	10	8	13	11	7	1	2	..
.	5	4	7	7	6	4	6	8	7	5	3	6	2	2	..
2	1	1	2	1	5	5	4	4	4	3	2	..	1	1	..
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35	39	46	59	59	51	44	37	47	51	51	35	29	20	13	1
16	21	32	32	20	25	25	16	44	26	36	34	17	21	5	..
51	60	78	91	79	76	69	53	91	77	87	69	46	41	18	1

RICHMOND.

for Year Ending December 31, 1906.

20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.
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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
6. Measles	7	..	3	..	3	..	6	1	..	..
7. Scarlet fever	5	..	2	..	..	2	4	1	..	..
8. Whooping cough	6	2	2	..	..	1	5	1	..	..
9. Diphtheria and croup	13	2	2	2	1	1	8	3	1	..
10. Influenza	..	..	..	..	..	..	..	..	..	..
11. Miliary fever	..	..	..	..	..	..	..	..	..	..
12. Asiatic cholera	..	..	..	..	..	..	..	..	..	..
13. Cholera nostras	..	..	..	..	..	..	..	..	..	..
14. Dysentery	3	..	..	..	..	..	..	..	..	..
15. Plague	..	..	..	..	..	..	..	..	..	..
16. Yellow fever	..	..	..	..	..	..	..	..	..	..
17. Leprosy	..	..	..	..	..	..	..	..	..	..
18. Erysipelas	1	..	..	..	..	..	..	..	..	..
19. Other epidemic diseases	..	..	..	..	..	..	..	..	..	..
20. Pyæmia, septicæmia	..	..	..	..	..	..	..	..	..	..
21. Glanders	..	..	..	..	..	..	..	..	..	..
22. Malignant pustule	..	..	..	..	..	..	..	..	..	..
23. Hydrophobia	..	..	..	..	..	..	..	..	..	..
24. Actinomycosis	..	..	..	..	..	..	..	..	..	..
24a. Trichinosis	..	..	..	..	..	..	..	..	..	..
25. Pellagra	..	..	..	..	..	..	..	..	..	..
26. Tuberculosis of larynx	..	..	..	..	..	..	..	..	..	..
27. Tuberculosis of lungs	51	..	1	..	..	..	1	1	1	2
28. Tubercular meningitis	4	1	..	2	..	..	3	..	..	..
29. Abdominal tuberculosis	..	..	..	..	..	..	..	..	..	..
30. Pott's disease	..	..	..	..	..	..	..	..	..	..
31. Cold abscess	..	..	..	..	..	..	..	..	..	..
32. White swelling	..	..	..	..	..	..	..	..	..	..
33. Tuberculosis of other organs	1	..	..	..	..	..	..	..	1	..
34. General tuberculosis	..	..	..	..	..	..	..	..	..	..
35. Scrofula	..	..	..	..	..	..	..	..	..	..
36. Syphilis	3	1	..	..	..	1	2	..	..	..
37. Gonorrhœa (adults)	..	..	..	..	..	..	..	..	..	..
38. Gonorrhœa (children)	..	..	..	..	..	..	..	..	..	..
39. Cancers, etc., of the mouth	..	..	..	..	..	..	..	..	..	..
40. Cancer of stomach, liver	9	..	..	..	..	..	..	..	..	..
41. Cancer of intestines, rectum	3	..	..	..	..	..	..	..	..	..
42. Cancer of female genital organs	8	..	..	..	..	..	..	..	..	..



Digitized by Google

20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.
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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
43. Cancer of the breast	8	..	..	..	..	..	..	..	..	..
44. Cancer of the skin	..	..	..	..	..	..	..	..	..	..
45. Cancer of other organs and unspecified	4	..	..	..	..	..	..	..	..	..
46. Other tumors (except of female genital organs)	1	..	..	..	..	..	..	..	..	..
47. Acute articular rheumatism	3	..	..	..	..	..	..	1	..	1
48. Chronic rheumatism and gout	1	..	..	..	..	..	..	..	1	..
49. Scurvy	..	..	..	..	..	..	..	..	..	..
50. Diabetes	4	..	..	..	..	..	..	..	..	1
51. Exophthalmic goitre	..	..	..	..	..	..	..	..	..	..
52. Addison's disease	..	..	..	..	..	..	..	..	..	..
53. Leukæmia	..	..	..	..	..	..	..	..	..	..
54. Anæmia, chlorosis	..	..	..	..	..	..	..	..	..	..
55. Other general diseases	..	..	..	..	..	..	..	..	..	..
56. Alcoholism, acute and chronic	1	..	..	..	..	..	..	..	..	..
57. Lead poisoning	..	..	..	..	..	..	..	..	..	..
58. Other chronic poisonings of occupation	..	..	..	..	..	..	..	..	..	..
59. Other chronic poisonings	..	..	..	..	..	..	..	..	..	..
II.—Diseases of Nervous System and Organs of Sense.										
60. Encephalitis	..	..	..	..	..	..	..	..	..	..
61. Simple meningitis	8	2	2	..	..	1	5	1	1	1
(Of which) Cerebro-spinal meningitis	4	..	1	..	..	..	1	1	1	1
62. Locomotor ataxia	1	..	..	..	..	..	..	..	..	..
63. Other diseases of spinal cord	1	..	..	..	..	..	..	..	..	..
64. Apoplexy, congestion of brain	31	..	..	..	..	..	..	..	..	..
65. Softening of brain	..	..	..	..	..	..	..	..	..	..
66. Paralysis, unspecified	4	..	..	..	..	..	..	..	..	..
67. General paresis	1	..	..	..	..	..	..	..	..	..
68. Other forms of insanity	..	..	..	..	..	..	..	..	..	..
69. Epilepsy	1	..	..	..	..	..	..	..	..	..
70. Convulsions (not puerperal)	1	..	..	..	..	..	..	..	..	..
71. Convulsions of infants	2	2	..	..	..	..	2	..	..	..
72. Tetanus, trismus	..	..	..	..	..	..	..	..	..	..
73. Chorea	1	..	..	..	..	..	..	..	1	..
74. Other nervous diseases	2	..	1	..	..	..	1	..	..	..
75. Diseases of the eyes	..	..	..	..	..	..	..	..	..	..
76. Diseases of the ears	..	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.
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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5	5	10	15
III.—Diseases of Circulatory System.										
77. Pericarditis	..	..	..	..	..	..	..	..	..	..
78. Acute endocarditis	..	..	..	..	..	..	..	..	..	..
79. Organic heart diseases	54	..	..	..	..	1	1	..	..	..
80. Angina pectoris	2	..	..	..	..	..	..	..	..	..
81. Diseases of arteries, aneurism, etc.	4	..	..	..	..	..	..	..	..	..
82. Embolism, thrombosis	3	..	..	..	..	..	..	..	..	..
83. Diseases of veins (hæmorrhoids, varices, phlebitis, etc.)	1	..	..	..	..	..	..	..	..	..
84. Diseases of lymphatics (lymphangitis, etc.)	..	..	..	..	..	..	..	..	..	..
85. Hæmorrhage	..	..	..	..	..	..	..	..	..	..
86. Other diseases of circulatory system	..	..	..	..	..	..	..	..	..	..
IV.—Diseases of Respiratory System.										
87. Diseases of nasal fossæ	..	..	..	..	..	..	..	..	..	..
88. Diseases of the larynx	1	1	..	..	..	..	1	..	..	..
89. Diseases of thyroid gland	..	..	..	..	..	..	..	..	..	..
90. Acute bronchitis	5	1	1	..	..	..	2	..	..	..
91. Chronic bronchitis	2	..	..	..	..	..	..	..	..	..
92. Broncho-pneumonia	19	8	7	..	..	..	15	..	..	..
93. Pneumonia	40	4	2	..	1	..	7	2	2	1
94. Pleurisy	2	1	1	..	..	..	2	..	..	..
95. Congestion of lungs, pulmonary apoplexy	3	..	..	..	..	..	..	..	..	..
96. Gangrene of lung	..	..	..	..	..	..	..	..	..	..
97. Asthma	..	..	..	..	..	..	..	..	..	..
98. Pulmonary emphysema	..	..	..	..	..	..	..	..	..	..
99. Other diseases of respiratory system (phthisis excepted)	..	..	..	..	..	..	..	..	..	..
V.—Diseases of Digestive System.										
100. Diseases of mouth and adnexa	..	..	..	..	..	..	..	..	..	..
101. Diseases of pharynx	..	..	..	..	..	..	..	..	..	..
102. Diseases of œsophagus	..	..	..	..	..	..	..	..	..	
103. Ulcer of stomach	1	..	..	..	..	..	..	..	..	..
104. Other diseases of stomach (cancer excepted)	3	1	1	..	..	..	2	..	..	..
105. Diarrhœa and enteritis (under two years)	76	69	7	..	..	..	76	..	..	..
(Of which) Chronic diarrhœa:										
106. Diarrhœa and enteritis (two years and over)	6	..	..	1	..	1	2	..	..	..
107. Intestinal parasites	..	..	..	..	..	..	..	..	..	..
108. Hernia, intestinal obstruction	4	..	..	..	..	..	..	..	..	..
109. Other diseases of intestines	1	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.
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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
110. Acute yellow atrophy of liver ..	3	..	..	..	..	..	..	..	..	..
111. Hydatid tumor of liver.....	..	..	..	..	..	..	..	..	..	..
112. Cirrhosis of liver.....	9	..	..	..	..	..	..	..	..	..
113. Biliary calculi	..	..	..	..	..	..	..	..	..	..
114. Other diseases of liver.....	2	..	..	..	..	..	..	..	..	..
115. Diseases of spleen.....	..	..	..	..	..	..	..	..	..	..
116. Simple peritonitis (non-puerperal)	..	..	..	..	..	..	..	..	..	..
117. Other diseases of digestive system (except tuberculosis and cancer).....	1	..	..	..	..	..	..	..	..	..
118. Appendicitis and iliac abscess...	4	..	..	..	..	..	..	..	2	..
VI.—Diseases of Genito-urinary System.										
119. Acute nephritis.....	6	..	..	..	..	..	..	..	..	1
120. Bright's disease.....	49	..	..	..	..	..	..	..	..	..
121. Other diseases of kidneys and adnexa	1	..	..	..	..	..	..	..	..	..
122. Urinary calculus.....	..	..	..	..	..	..	..	..	..	..
123. Diseases of bladder.....	..	..	..	..	..	..	..	..	..	..
124. Diseases of urethra, urinary abscess, etc.....	..	..	..	..	..	..	..	..	..	..
125. Diseases of the prostate.....	..	..	..	..	..	..	..	..	..	..
126. Non-venereal diseases of male genital organs.....	..	..	..	..	..	..	..	..	..	..
127. Metritis.....	..	..	..	..	..	..	..	..	..	..
128. Uterine hæmorrhage (not puerperal).....	1	..	..	..	..	..	..	..	..	..
129. Uterine tumor (not cancer).....	1	..	..	..	..	..	..	..	..	..
130. Other diseases of uterus.....	..	..	..	..	..	..	..	..	..	..
131. Ovarian cysts and tumors.....	2	..	..	..	..	..	..	..	..	..
132. Other diseases of female genital organs.....	3	..	..	..	..	..	..	..	..	..
133. Diseases of breast (not puerperal, nor cancer).....	..	..	..	..	..	..	..	..	..	..
VII.—Puerperal Diseases.										
134. Accidents of pregnancy.....	2	..	..	..	..	..	..	..	..	..
135. Puerperal hæmorrhage	..	..	..	..	..	..	..	..	..	..
136. Other accidents of labor.....	1	..	..	..	..	..	..	..	..	..
137. Puerperal septicæmia.....	7	..	..	..	..	..	..	..	..	1
138. Puerperal albuminuria and convulsions.....	5	..	..	..	..	..	..	..	..	1
139. Puerperal phlegmasia alba dolens.....	..	..	..	..	..	..	..	..	..	..
140. Other accidents of parturition, sudden death.....	1	..	..	..	..	..	..	..	..	..
141. Puerperal diseases of breast....	..	..	..	..	..	..	..	..	..	..
VIII.—Diseases of Skin and Cellular Tissue.										
142. Gangrene.....	3	1	..	..	..	..	1	..	..	..
143. Carbuncle	1	1	..	..	..	..	1	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.
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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
144. Phlegmon, acute abscess	..	..	..	..	..	..	..	..	..	..
145. Other diseases of skin and adnexa	..	..	..	..	..	..	..	..	..	..
IX.—Diseases of Locomotory System.										
146. Diseases of bones (non-tuberculous)	3	..	1	..	..	..	1	2	..	..
147. Arthritis, other diseases of joints (except tuberculosis and rheumatism)	..	..	..	..	..	..	..	..	..	..
148. Amputation	..	..	..	..	..	..	..	..	..	..
149. Other diseases of organs of locomotion	..	..	..	..	..	..	..	..	..	..
X.—Malformations.										
150. Congenital malformations	1	..	..	..	..	..	..	1	..	..
XI.—Diseases of Infancy.										
151. Congenital debility, icterus and sclerema	39	39	..	..	..	..	39	..	..	..
151a. Injury during birth	1	1	..	..	..	..	1	..	..	..
152. Other diseases peculiar to infancy	1	1	..	..	..	..	1	..	..	..
153. Neglect	..	..	..	..	..	..	..	..	..	..
XII.—Diseases of Old Age.										
154. Senile debility	16	..	..	..	..	..	..	..	..	..
XIII.—External Causes.										
155. Suicide by poison	1	..	..	..	..	..	..	..	..	1
156. Suicide by asphyxia	..	..	..	..	..	..	..	..	..	..
157. Suicide by hanging or strangulation	1	..	..	..	..	..	..	..	..	..
158. Suicide by drowning	..	..	..	..	..	..	..	..	..	..
159. Suicide by firearms	..	..	..	..	..	..	..	..	..	..
160. Suicide by cutting instruments	..	..	..	..	..	..	..	..	..	..
161. Suicide by precipitation from height	..	..	..	..	..	..	..	..	..	..
162. Suicide by crushing	..	..	..	..	..	..	..	..	..	..
163. Suicide by other methods	..	..	..	..	..	..	..	..	..	..
164. Fractures	..	..	..	..	..	..	..	..	..	..
165. Dislocations	..	..	..	..	..	..	..	..	..	..
166. Other accidental injuries	1	..	..	..	..	..	..	..	..	..
167. Burn, by fire, scald	2	..	..	..	1	..	1	..	..	..
168. Burning by corrosive substances	..	..	..	..	..	..	..	..	..	..
169. Sunstroke	2	..	..	..	..	..	..	..	..	..
170. Freezing	..	..	..	..	..	..	..	..	..	..
171. Electrical shock	..	..	..	..	..	..	..	..	..	..
172. Accidental drowning	..	..	..	..	..	..	..	..	..	..
173. Inanition (starvation)	..	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.
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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
174. Inhalation of noxious gas, not suicidal	2	..	..	..	..	..	..	..	..	..
175. Other acute poisoning	..	..	..	..	..	..	..	..	..	..
176. Other external violence	..	..	..	..	..	..	..	..	..	..
(Of which) a. Homicide, by blows	..	..	..	..	..	..	..	..	..	..
b. Homicide, by sharp instruments	..	..	..	..	..	..	..	..	..	..
c. Homicide, by gunshot	..	..	..	..	..	..	..	..	..	..
d. Homicide, by poison	..	..	..	..	..	..	..	..	..	..
e. Homicide, by other methods	..	..	..	..	..	..	..	..	..	..
XIV.—Ill-defined or Not Specified Causes.										
177. Dropsy	..	..	..	..	..	..	..	..	..	..
178. Sudden death, not puerperal	..	..	..	..	..	..	..	..	..	..
179. Ill-defined causes	25	23	2	..	..	..	25	..	..	..
I.—General diseases	137	6	10	4	4	5	29	8	4	4
a. Tuberculous diseases	56	1	1	2	..	..	4	1	2	2
b. Cancer	32	..	..	..	..	..	..	..	..	..
II.—Diseases of nervous system and organs of sense	53	4	3	..	..	1	8	1	2	1
III.—Diseases of circulatory system	64	..	..	..	..	1	1	..	..	..
IV.—Diseases of respiratory system	72	15	11	..	1	..	27	2	2	1
V.—Diseases of digestive system	110	70	8	1	..	1	80	..	2	..
VI.—Diseases of genito-urinary system	63	..	..	..	..	..	..	..	..	1
VII.—Puerperal diseases	16	..	..	..	..	..	..	..	..	2
VIII.—Diseases of skin and cellular tissue	4	2	..	..	..	..	2	..	..	..
IX.—Diseases of locomotory system	3	..	1	..	..	..	1	2	..	..
X.—Malformations	1	..	..	..	..	..	..	1	..	..
XI.—Diseases of infancy	41	41	..	..	..	..	41	..	..	..
XII.—Diseases of old age	16	..	..	..	..	..	..	..	..	..
XIII.—External causes	9	..	..	..	1	..	1	..	..	1
a. Suicide	2	..	..	..	..	..	..	..	..	1
b. Homicide	..	..	..	..	..	..	..	..	..	..
c. Accident	7	..	..	..	1	..	1	..	..	..
XIV.—Causes ill defined	25	23	2	..	..	..	25	..	..	..
Total females	614	161	35	5	6	8	215	14	10	10

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.
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6	7	11	16	8	9	10	6	7	3	4	3	..	2	..
3	6	9	12	4	4	3	2	..	..	2	2	..	..	..
1	..	..	4	3	4	4	4	7	1	2	1	..	1	..
..	..	1	1	..	3	5	3	4	5	7	8	2	2	..
2	1	4	3	3	3	5	1	9	6	12	6	5	3	2
1	2	2	1	2	4	1	1	10	3	4	7	2	..	..
2	1	3	5	..	3	1	2	4	2	2	1	2	..	1
4	3	8	4	5	3	2	2	9	3	6	7	3	3	..
1	7	2	2	2	..	..	..	..	..	..	..	..	..	1
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16	21	32	32	20	25	25	16	44	26	36	34	17	21	5

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Deaths of Males by Age, and Cause of Death,

Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
I.—General Diseases.											
1. Typhoid fever	639	392	1	3	2	1	3	10	11	19	42
2. Typhus fever	..	..	..	..	..	..	..	..	..	..	..
3. Relapsing fever	..	..	..	..	..	..	..	..	..	..	..
4. Malarial fever	64	43	6	1	1	2	2	12	..	1	2
5. Small-pox	6	4	..	..	..	..	..	..	..	..	..
6. Measles	1,145	566	162	209	97	45	19	532	25	..	2
7. Scarlet fever	491	246	17	32	46	51	16	162	53	16	5
8. Whooping cough	367	162	90	41	20	7	..	158	4	..	..
9. Diphtheria and croup	1,898	1,057	104	280	212	149	90	835	167	27	8
10. Influenza	241	101	11	6	1	1	2	21	3	1	2
11. Miliary fever	..	..	..	..	..	..	..	..	..	..	..
12. Asiatic cholera	..	..	..	..	..	..	..	..	..	..	..
13. Cholera nostras	1	1	..	..	..	..	..	..	..	..	..
14. Dysentery	142	70	12	5	5	3	2	27	1	..	1
15. Plague	..	..	..	..	..	..	..	..	..	..	..
16. Yellow fever	..	..	..	..	..	..	..	..	..	..	..
17. Leprosy	..	..	..	..	..	..	..	..	..	..	..
18. Erysipelas	292	149	44	..	..	1	..	45	1	4	1
19. Other epidemic diseases	16	7	3	2	..	..	..	5	..	..	..
20. Pyæmia, septicæmia	63	44	11	2	2	..	..	15	..	..	..
21. Glanders	6	6	..	..	..	..	..	..	..	..	..
22. Malignant pustule	3	3	..	..	..	..	..	..	..	..	..
23. Hydrophobia	12	8	..	..	..	..	1	1	1	2	1
24. Antinomycosis	4	2	..	..	..	..	..	..	..	..	..
24a. Trichinosis	..	..	..	..	..	..	..	..	..	..	..
25. Pellagra	..	..	..	..	..	..	..	..	..	..	..
26. Tuberculosis of larynx	67	48	..	..	..	1	..	1	..	..	1
27. Tuberculosis of lungs	8,955	5,641	39	37	19	7	5	107	17	40	247
28. Tubercular meningitis	765	414	113	82	48	41	19	303	36	15	7
29. Abdominal tuberculosis	196	109	22	11	5	2	3	43	9	2	4
30. Potts' disease	58	29	..	1	..	4	1	6	2	2	3
31. Cold abscess	8	4	2	..	..	..	1	3	..	..	..
32. White swelling	43	24	..	1	..	..	..	1	10	3	..
33. Tuberculosis of other organs	46	29	1	..	1	..	..	2	2	1	..

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NEW YORK.

for the Year Ending December 31, 1906.

20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
75	52	53	48	35	13	13	9	2	4	4	2	..	..	11	..
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4	2	4	5	3	4	3	..	..	2	..	..	1	..	1	..
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7	6	4	..	1	1	..	1	..	..	..	..	..	..	6	..
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492	696	886	908	668	587	402	256	164	103	46	16	3	3	201	40
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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
34. General tuberculosis...	56	34	7	4	1	..	..	12	2	2	5
35. Scrofula.....	7	5	3	1	1	..	..	5	..	..	..
36. Syphilis.....	275	172	84	4	2	1	2	93	1	..	1
37. Gonorrhœa (adults)...	5	3	..	..	..	..	..	..	..	..	..
38. Gonorrhœa (children).	6	3	2	1	..	..	..	3	..	..	..
39. Cancer, etc., of the mouth.....	113	93	..	..	..	..	..	..	..	..	..
40. Cancer of stomach, liver.....	1,235	591	1	..	..	..	..	1	..	1	..
41. Cancer of intestines, rectum.....	427	183	..	..	1	..	..	1	1	..	1
42. Cancer of female genital organs.....	447	..	..	..	..	..	..	..	..	..	..
43. Cancer of the breast...	273	5	..	..	..	..	..	..	..	..	..
44. Cancer of the skin.....	68	47	..	..	..	..	..	..	2	1	..
45. Cancer of other organs and unspecified.....	442	255	1	1	..	1	..	3	4	2	7
46. Other tumors (except of female genital organs.....	39	13	2	..	..	..	..	2	1	2	1
47. Acute articular rheumatism.....	388	166	5	2	1	2	3	13	21	13	13
48. Chronic rheumatism and gout.....	141	56	2	..	..	..	..	2	2	1	2
49. Scurvy.....	9	4	3	..	..	1	..	4	..	..	..
50. Diabetes.....	652	281	..	..	..	..	..	..	2	1	9
51. Exophthalmic goitre..	29	2	..	..	..	..	..	..	..	..	..
52. Addison's disease.....	6	2	..	..	..	..	..	..	..	..	..
53. Leukæmia.....	72	44	..	..	1	..	..	1	3	1	1
54. Anæmia, chlorosis.....	95	37	4	..	2	..	..	6	4	..	1
55. Other general diseases.	..	..	..	..	..	..	..	..	..	..	..
56. Alcoholism, acute and chronic.....	636	523	..	..	..	..	..	..	1	..	..
57. Lead poisoning.....	9	9	..	..	..	..	..	..	..	..	..
58. Other chronic poisonings of occupation.	1	1	..	..	..	..	..	..	..	..	..
59. Other chronic poisonings.....	11	5	..	..	..	..	..	..	..	..	..
II.—Diseases of Nervous System and Organs of Sense.											
60. Encephalitis.....	10	6	2	1	..	..	..	3	..	..	1
61. Simple meningitis.....	1,206	667	146	84	56	34	29	349	100	43	47
61a. (Of which) cerebro-spinal meningitis	812	455	80	44	39	25	25	213	79	39	38
62. Locomotor ataxia.....	103	81	..	..	..	..	..	..	..	..	..
63. Other diseases of spinal cord.....	149	78	..	..	2	..	1	3	3	1	..
64. Apoplexy, congestion of brain.....	2,710	1,339	8	..	1	1	..	10	1	..	3
65. Softening of brain.....	62	31	..	..	..	..	1	1	..	..	..
66. Paralysis unspecified...	218	109	2	..	..	..	1	3	..	..	1

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
1	2	3	4	2	..	..	..	..	..	..	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	12	10	12	9	11	9	6	3	1	..	..	..	..	9	1
..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	2	..	8	7	6	12	9	16	16	10	1	5	..	1	1
2	5	11	28	48	64	90	93	81	58	56	38	12	3	11	..
2	3	5	6	17	20	18	33	24	23	20	5	3	1	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	1	..	..	..	..	1	..	..	1	1	1	..	1	..
1	1	1	1	3	2	7	6	6	7	5	2	1	1	..	..
10	7	12	13	25	18	25	34	28	29	22	9	5	2	2	1
..	..	..	3	..	1	..	1	..	1	1	..	..	..	..	..
8	8	8	9	9	15	13	9	11	6	5	3	2	..	..	..
2	3	4	1	..	2	5	5	7	10	3	4	2	1	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
9	3	7	14	16	27	42	40	39	29	27	8	7	1	2	..
..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..
..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..
..	2	2	3	8	5	5	1	5	4	1	1	1	..	1	1
1	2	1	3	6	2	2	5	1	3	..	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	44	90	101	89	80	43	30	25	8	2	3	..	..	3	..
1	1	2	..	1	2	1	1	..	..	..	..	..	..	..	..
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
..	1	..	1	1	..	..	..	1	1	..	..	..	..	..	..
..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..
34	20	12	20	14	10	7	4	3	3	..	1	..	..	23	..
32	16	8	12	8	6	3	..	1	..	..	..	..	..	12	..
..	1	1	7	13	8	13	17	11	4	4	1	1	..	..	..
..	3	4	5	7	8	4	7	9	13	6	5	..	..	2	..
5	7	28	31	76	96	152	162	195	194	158	124	68	29	17	4
..	..	1	1	3	1	4	2	2	6	1	4	2	3	1	..
1	2	5	7	9	12	10	8	16	12	7	6	5	5	5	..

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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
67. General paresis.....	179	111	..	..	..	..	..	..	..	..	..
68. Other forms of insanity	53	26	..	..	..	..	..	..	..	..	2
69. Epilepsy.....	145	83	6	1	1	1	1	10	7	1	4
70. Convulsions (not puerperal	6	3	..	..	..	..	..	..	3	..	..
71. Convulsions of infants	721	394	330	47	12	2	3	394	..	..	..
72. Tetanus, trismus.....	85	55	23	..	..	..	..	23	8	7	1
73. Chorea.....	8	4	..	1	..	..	..	1	..	..	1
74. Other nervous diseases	197	124	2	2	4	..	..	8	5	4	3
75. Diseases of the eyes...	6	2	1	..	..	..	1	2	..	..	..
76. Diseases of the ears...	188	113	21	10	5	3	1	40	11	9	9
III.—Diseases of Circulatory System.											
77. Pericarditis.....	46	29	2	..	..	..	..	2	3	2	..
78. Acute endocarditis.....	495	253	7	1	2	3	..	13	9	5	8
79. Organic heart diseases.	5,557	2,770	14	6	1	4	3	28	38	52	59
80. Angina pectoris.....	184	120	..	..	..	..	..	..	..	..	..
81. Diseases of arteries, aneurism, etc.....	366	225	..	..	..	..	..	..	..	..	..
82. Embolism, thrombosis	162	66	1	1	..	..	1	3	1	2	..
83. Diseases of veins (hæmorrhoids, varices, phlebitis, etc.)	26	10	..	..	..	..	..	..	..	..	..
84. Diseasesof lymphatics (lymphangitis, etc.)	19	10	3	1	1	2	..	7	..	1	..
85. Hæmorrhage	95	57	37	1	..	..	..	38	1	3	..
86. Other diseases of circulatory system...	1	1	1	..	..	..	..	1	..	..	..
IV.—Diseases of Respiratory System.											
87. Diseases of nasal fossæ	2	1	1	..	..	..	..	1	..	..	..
88. Diseases of the larynx.	55	30	13	8	..	..	2	23	2	..	1
89. Diseases of thyroid gland.....	4	2	..	..	..	..	..	..	..	..	..
90. Acute bronchitis.....	1,319	650	421	87	20	12	3	543	9	1	1
91. Chronic bronchitis.....	254	118	4	1	..	1	..	6	3	..	1
92. Broncho-pneumonia ...	5,101	2,669	1,199	631	183	72	37	2,122	62	11	18
93. Pneumonia.....	5,767	3,344	381	275	101	49	25	831	83	25	58
94. Pleurisy	329	215	18	31	13	6	2	70	8	4	8
95. Congestion of lungs, pulmonary apoplexy	121	60	16	1	2	..	..	19	..	1	..
96. Gangrene of lung.....	49	36	2	1	..	..	1	4	..	1	1
97. Asthma.....	175	98	..	..	..	..	..	..	1	..	1
98. Pulmonary emphysema	96	62	..	..	..	..	..	..	..	..	..
99. Other diseases of respiratory system (phthisis excepted)	89	58	1	2	..	..	..	3	..	..	1

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
..	..	5	12	27	17	15	8	6	10	8	2	1	..	1	..
4	2	..	4	3	1	3	1	1	2	3	..	..	..	..	..
12	10	8	5	7	4	3	2	5	4	..	..	1	..	2	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	15	..
5	1	1	..	2	2	1	4	..	..	..	..	..	..	1	..
1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
12	21	16	22	8	10	3	3	3	3	2	..	1	..	5	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10	5	9	7	4	..	2	3	3	..	..	1	..	..	1	..
1	2	5	2	..	4	2	1	3	1	..	..	1	..	1	..
8	18	22	10	15	17	16	25	23	20	23	12	7	2	6	..
77	101	123	180	213	217	264	304	316	298	237	153	72	38	69	7
1	1	5	5	11	9	15	21	20	15	8	5	4	..	1	..
1	5	6	10	16	17	17	13	20	27	37	23	21	12	12	..
2	3	1	3	1	5	10	2	5	9	8	8	1	2	1	..
1	..	1	2	2	..	1	1	1	..	..	1	..	..	..	..
1	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..
1	1	3	4	..	2	..	2	..	1	..	..	..	1	6	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	1	1	1	..	..	1	..	..	..	..	..	..	..
..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..
2	1	1	4	3	8	3	6	6	18	17	11	9	7	18	1
..	2	1	1	2	7	8	10	14	19	13	13	10	8	..	..
11	32	21	30	31	35	34	31	55	55	45	37	19	20	87	4
124	171	239	257	276	267	215	190	217	151	120	65	30	25	100	4
8	14	10	16	15	9	11	12	11	4	8	3	2	2	4	..
1	3	..	3	4	..	1	..	4	2	5	6	3	8	1	..
1	2	..	3	4	7	1	4	6	..	1	1	..	..	..	..
..	1	1	1	4	13	6	14	14	17	13	4	5	3	1	..
..	..	..	2	4	6	7	8	8	9	6	5	2	5	2	..
2	4	8	7	6	12	2	5	2	3	2	..	..	1	4	..

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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
V.—Diseases of Digestive System.											
100. Diseases of mouth and adnexa	11	5	2	1	..	..	..	3	..	..	..
101. Diseases of pharynx	56	38	12	6	2	1	1	22	3	..	1
102. Diseases of œsophagus	6	5	..	..	..	..	1	1	..	..	..
103. Ulcer of stomach	142	89	2	..	..	..	..	2	1	..	..
104. Other diseases of stomach (cancer excepted)	346	178	38	9	9	3	1	60	2	3	1
105. Diarrhœa and enteritis (under two years)	5,783	3,159	2,729	430	..	..	..	3,159	..	..	..
(of which) chronic diarrhœa	..	..	..	..	..	..	..	..	..	..	..
106. Diarrhœa and enteritis (two years and over)	722	359	..	..	90	29	12	131	20	7	3
107. Intestinal parasites	5	4	..	1	..	..	..	1	1	..	1
108. Hernia, intestinal obstruction	577	284	53	5	4	4	1	67	4	3	6
109. Other diseases of intestines	49	27	5	..	2	..	..	7	2	..	1
110. Acute yellow atrophy of liver	15	5	..	..	..	1	..	1	..	..	1
111. Hydatid tumor of liver	3	3	..	..	..	..	..	..	..	..	..
112. Cirrhosis of liver	1,031	658	..	..	..	..	1	1	..	2	..
113. Biliary calculi	137	55	1	..	..	..	..	1	..	..	1
114. Other diseases of liver	136	75	2	..	..	1	..	3	..	1	..
115. Diseases of spleen	6	4	..	..	..	..	..	..	..	..	..
116. Simple peritonitis (non-puerperal)	77	36	4	..	..	2	1	7	3	1	1
117. Other diseases of digestive system (except tuberculosis and cancer)	17	10	..	..	..	..	..	..	..	..	..
118. Appendicitis and iliac abscess	544	333	1	2	1	2	3	9	23	20	42
VI.—Diseases of Genito-urinary System.											
119. Acute nephritis	670	342	33	5	13	9	1	61	20	6	12
120. Bright's disease	5,438	2,960	3	6	2	7	..	18	13	13	23
121. Other diseases of kidneys and adnexa	75	40	1	..	..	..	..	1	..	..	..
122. Urinary calculus	23	17	..	..	..	..	..	..	..	..	..
123. Diseases of bladder	98	75	1	1	1	..	..	3	1	..	..
124. Diseases of urethra, urinary abscess, etc.	36	27	..	..	..	..	..	..	..	..	..
125. Diseases of the prostate	86	86	..	..	..	..	..	..	..	..	..
126. Non-venereal diseases of male genital organs	2	2	1	..	..	..	..	1	..	..	..
127. Metritis	8	..	..	..	..	..	..	..	..	..	..
128. Uterine hæmorrhage (not puerperal)	5	..	..	..	..	..	..	..	..	..	..
129. Uterine tumor (not cancer)	94	..	..	..	..	..	..	..	..	..	..
130. Other diseases of uterus	34	..	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..
2	3	3	1	..	2	..	1	..	..	..	..	..	..	1	..
..	..	..	..	1	..	..	1	..	1	..	..	1	..	..	..
3	3	13	8	14	17	6	7	5	3	3	2	..	2	..	..
3	5	6	8	7	7	9	16	13	2	11	13	8	4	5	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	74	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10	14	14	9	11	20	16	13	17	15	20	18	13	8	6	..
..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
7	7	8	15	10	27	23	16	29	25	14	15	4	4	3	2
1	..	1	1	1	..	1	3	1	..	4	1	2	1	2	..
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4	14	37	73	100	101	89	80	75	39	29	8	5	1	12	1
..	2	2	3	5	6	11	5	5	6	4	2	1	1	..	..
7	5	4	7	6	7	12	7	3	6	3	1	2	1	3	..
..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..
2	4	2	4	1	5	2	..	..	1	2	1	..	..	..	..
..	2	1	..	1	2	..	3	..	1	..	..	..	..	..	..
36	40	40	24	23	22	15	12	12	2	2	2	..	..	..	..
14	25	26	40	20	24	24	26	14	11	11	7	1	..	6	..
51	110	143	229	275	284	321	304	346	335	238	135	86	36	62	5
1	2	3	7	3	1	4	4	3	3	5	1	1	1	..	..
..	1	1	1	..	2	1	2	2	2	1	3	1	..	..	..
..	..	2	1	1	..	7	5	3	7	14	14	13	4	1	..
..	1	2	3	5	3	5	3	1	2	1	..	1	..	..	..
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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
131. Ovarian cysts and tumors	50	..	..	..	..	..	..	..	..	..	..
132. Other diseases of female genital organs	133	..	..	..	..	..	..	..	..	..	..
133. Diseases of breast (not puerperal, nor cancer)	2	..	..	..	..	..	..	..	..	..	..
VII.—Puerperal Diseases.											
134. Accidents of pregnancy	173	..	..	..	..	..	..	..	..	..	..
135. Puerperal hæmorrhage	43	..	..	..	..	..	..	..	..	..	..
136. Other accidents of labor	135	..	..	..	..	..	..	..	..	..	..
137. Puerperal septicæmia.	263	..	..	..	..	.	..	..	..	..	..
138. Puerperal albuminuria and convulsions	123	..	..	..	..	..	..	..	..	..	..
139. Puerperal phlegmasia alba dolens	2	..	..	..	..	..	..	..	..	..	..
140. Other accidents of parturition, sudden death	24	..	..	..	..	..	..	..	..	..	..
141. Puerperal diseases of breast	..	..	..	..	..	..	..	..	..	..	..
VIII.—Diseases of Skin and Cellular Tissue.											
142. Gangrene	101	38	..	..	1	..	..	1	1	..	..
143. Carbuncle	32	22	1	..	..	..	..	1	..	..	..
144. Phlegmon, acute abscess	100	65	15	..	..	..	..	15	1	2	3
145. Other diseases of skin and adnexa	46	20	12	2	1	..	..	15	..	..	..
IX.—Diseases of Locomotory System.											
146. Diseases of bones (non-tuberculous)	121	74	18	10	5	..	2	35	1	4	6
147. Arthritis, other diseases of joints (except tuberculosis and rheumatism)	15	9	1	..	..	..	..	1	..	1	2
148. Amputation	..	..	..	..	..	..	..	..	..	..	..
149. Other diseases of organs of locomotion	1	1	..	..	..	..	..	..	..	1	..
X.—Malformations.											
150. Congenital malformations	670	382	349	14	5	7	2	377	1	3	..
XI.—Diseases of Infancy.											
151. Congenital debility, icterus and sclerema	3,666	2,055	2,051	3	1	..	..	2,055	..	..	..
151a. Injury during birth	264	155	..	..	..	..	..	155	..	..	..
152. Other diseases peculiar to infancy	75	51	50	1	..	..	..	51	..	..	..
153. Neglect	4	1	1	..	..	..	..	1	..	..	..
XII.—Diseases of Old Age.											
154. Senile debility	890	324	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
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..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	..	..	1	1	1	1	2	8	7	6	6	2	..	..
..	1	1	1	2	..	2	5	3	3	1	2	..	..	..	..
2	2	8	6	5	7	4	2	5	..	2	1	..	..	3	..
..	..	..	..	..	1	1	1	1	..	..	..	1	..	..	..
5	1	5	2	3	2	1	4	2	2	1	..	..	..	7	..
..	1	..	..	1	1	..	1	1	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	..	..	..	..	..	..	..	..	..	..	..	..	7	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	67	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	6	10	30	37	68	83	90	2	..

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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
XIII.—External Causes.											
155. Suicide by poison.....	131	90	..	..	..	..	..	..	..	2	9
156. Suicide by asphyxia..	193	36	..	..	..	..	..	..	..	1	..
157. Suicide by hanging or strangulation...	69	59	..	..	..	..	..	..	..	..	..
158. Suicide by drowning..	15	9	..	..	..	..	..	..	..	..	..
159. Suicide by firearms...	212	198	..	..	..	..	..	..	..	2	9
160. Suicide by cutting instruments.....	45	39	..	..	..	..	..	..	..	..	..
161. Suicide by precipitation from height...	40	23	..	..	..	..	..	..	..	..	..
162. Suicide by crushing...	1	1	..	..	..	..	..	..	..	..	..
163. Suicide by other methods.....	1	1	..	..	..	..	..	..	..	..	..
164. Fractures.....	113	89	..	..	..	..	..	..	2	2	4
165. Dislocations.....	..	..	..	..	..	..	..	..	..	..	..
166. Other accidental injuries.....	2,176	1,812	11	17	24	27	41	120	164	67	94
167. Burn, by fire, scald. ..	355	151	13	25	26	20	10	94	12	2	1
168. Burning by corrosive substances.....	..	..	..	..	..	..	..	..	..	..	..
169. Sunstroke.....	112	66	9	2	..	1	..	12	..	1	1
170. Freezing.....	11	11	..	..	..	..	..	..	..	..	1
171. Electrical shock	25	25	..	..	..	..	..	..	..	1	..
172. Accidental drowning..	497	463	2	2	2	..	..	6	30	38	43
173. Inanition (starvation).	3	1	..	1	..	..	..	1	..	..	..
174. Inhalation of noxious gas, not suicidal ...	282	194	6	..	..	1	1	8	..	1	9
175. Other acute poisoning.	96	49	3	3	4	2	4	16	5	..	2
176. Other external violence.....	364	246	23	2	1	..	1	27	2	3	13
(Of which)											
a. Homicide, by blows.	45	36	..	..	..	..	1	1	..	1	1
b. Homicide, by sharp instruments	56	48	..	..	..	..	..	..	1	..	4
c. Homicide, by gunshot.....	135	106	..	..	..	..	..	..	..	1	8
d. Homicide, by poison	3	2	..	..	..	..	..	..	..	..	..
e. Homicide, by other methods.....	14	4	1	..	..	..	..	1	..	1	..
XIV.—Ill-defined or Not Specified Causes.											
177. Dropsy.....	..	..	..	..	..	..	..	..	..	..	..
178. Sudden death, not puerperal.....	..	..	..	..	..	..	..	..	..	..	..
179. Ill-defined causes.....	969	509	446	49	4	6	..	505	..	..	1

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and Over.	Colored.	Chinese.
8	13	16	13	10	4	7	3	5	..	..	..	..	..	1	1
11	10	12	15	17	17	10	18	12	5	5	3	..	..	..	..
3	3	6	13	9	4	5	6	6	2	..	1	1	..	..	1
1	1	1	1	..	2	1	1	..	..	1	..	..	..	..	..
18	29	20	21	13	21	21	15	11	8	5	2	2	1	1	..
..	2	5	5	4	4	5	7	4	1	1	..	1	..	..	1
2	3	2	6	1	4	..	..	1	3	..	1	..	..	2	1
..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
7	4	12	11	15	6	8	3	5	5	2	1	2	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
169	185	192	184	179	121	103	61	77	48	28	8	7	5	40	..
4	4	8	4	3	3	5	8	1	..	..	1	..	1	3	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	4	9	9	9	8	6	..	3	..	..	..	1	..	1	..
..	..	..	..	..	3	2	1	4	..	..	..	..	..	..	..
3	5	6	3	4	1	2	..	..	..	..	..	..	..	..	..
40	49	41	43	54	41	21	28	13	9	3	1	2	1	9	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23	16	23	22	22	9	12	14	11	8	8	6	1	1	10	..
..	6	3	3	2	4	3	1	3	..	1	..	..	..	3	..
40	33	29	34	20	17	13	4	6	2	2	..	1	..	13	4
7	5	3	4	3	5	2	3	1	..	..	..	..	..	..	..
9	9	7	5	6	2	3	..	1	..	..	..	1	..	2	..
23	17	12	20	10	8	4	1	2	..	..	..	..	..	..	..
..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..
1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	2	1	..	..	..	..	..	..	..	..	..	19	..

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Cause of Death.	Total both Sexes.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
I.—General diseases...	20,970	11,693	752	726	468	320	169	2,435	386	157	367
a. Tuberculous diseases	10,194	6,332	184	136	74	55	29	478	78	65	267
b. Cancer	3,005	1,174	2	1	1	1	..	5	7	4	8
II.—Diseases of nervous system and organs of sense	6,046	3,226	541	146	81	41	38	847	138	65	72
III.—Diseases of circulatory system..	6,951	3,541	65	10	4	9	4	92	52	65	67
IV.—Diseases of respiratory system..	13,361	7,343	2,056	1,037	319	140	70	3,622	168	43	90
V.—Diseases of digestive system.	9,663	5,327	2,849	454	108	43	21	3,475	59	46	58
VI.—Diseasesof genito-urinary system.	6,754	3,549	39	12	16	16	1	84	34	19	35
VII.—Puerperal diseases.	763	..	..	..	..	..	..	..	..	..	..
VIII.—Diseases of skin and cellular tissue	279	145	28	2	2	..	..	32	2	2	3
IX.—Diseases of locomotory system.	137	84	19	10	5	..	2	36	1	6	8
X.—Malformations.....	670	382	349	14	5	7	2	377	1	3	..
XI.—Diseases of infancy	4,009	2,262	2,257	4	1	..	..	2,262	..	..	..
XII.—Diseases of old age	890	324	..	..	..	..	..	..	..	..	..
XIII.—External causes....	4,741	3,663	67	52	57	51	57	284	215	118	179
a. Suicide	707	556	..	..	..	..	..	..	..	3	11
b. Homicide.....	253	196	1	..	..	..	1	2	1	3	13
c. Accident.....	3,781	2,911	66	52	57	51	56	282	214	112	155
XIV.—Causes ill-defined..	969	509	446	49	4	6	..	505	..	..	1
Total males.....	..	42,048	9,468	2,516	1,070	633	364	14,051	1,056	524	880
Total females...	..	34,155	7,720	2,197	905	532	372	11,726	878	541	743
Total both sexes.	..	76,203	17,188	4,713	1,975	1,165	736	25,777	1,934	1,065	1,623

CITY OF

Deaths of Females by Age, and Cause of Death,

Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
I.—General Diseases.										
1. Typhoid fever.....	247	..	3	1	1	4	9	13	23	34
2. Typhus fever.....	..	..	..	..	..	..	..	..	..	..
3. Relapsing fever.....	..	..	..	..	..	..	..	..	..	..
4. Malarial fever.....	21	..	1	1	2	..	4	..	1	1
5. Small-pox	2	1	..	..	1	..	2	..	..	..
6. Measles.....	579	153	221	102	50	23	549	24	2	2

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
675	900	1,160	1,230	1,003	907	736	575	442	328	216	107	50	19	296	46
522	724	920	939	696	612	416	269	169	106	47	17	3	4	223	40
16	18	30	56	100	110	152	176	155	133	114	56	27	7	16	2
84	73	90	121	174	169	217	221	254	252	189	144	79	37	74	4
93	131	166	216	258	271	325	369	388	371	314	202	105	55	97	7
149	230	282	325	351	365	288	280	338	278	230	145	80	79	217	9
75	102	134	155	181	218	185	164	161	101	92	63	36	22	110	3
66	140	178	284	305	316	364	348	383	376	288	172	112	45	69	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	3	9	7	8	9	8	9	11	11	10	9	7	2	3	..
5	2	5	2	4	3	1	5	3	2	1	..	..	..	7	..
1	..	..	..	..	..	..	..	..	..	..	..	..	..	7	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	71	..
..	..	..	..	..	..	..	6	10	30	37	68	83	90	2	..
333	362	383	390	365	275	222	174	160	96	56	24	18	9	84	8
44	56	60	77	57	62	47	54	37	24	12	7	4	1	4	4
40	31	23	30	19	15	9	4	5	..	..	..	1	..	8	2
249	275	300	283	289	198	166	116	118	72	44	17	13	8	72	2
..	..	..	2	1	..	..	..	..	..	..	..	..	..	19	..
1,484	1,943	2,407	2,732	2,650	2,533	2,346	2,151	2,150	1,845	1,433	934	571	358	1,056	82
1,307	1,593	1,649	1,665	1,648	1,497	1,644	1,643	1,868	1,739	1,524	1,150	761	579	1,000	4
2,791	3,536	4,056	4,397	4,298	4,030	3,990	3,794	4,018	3,584	2,957	2,084	1,332	937	2,056	86

NEW YORK.

for Year Ending December 31, 1906.

20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
39	36	32	19	15	12	5	1	3	3	1	1	1	..	6	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..
2	2	1	..	3	1	2	1	2	..	1	..	..	..	3	..
..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..
..	1	..	1	..	..	..	..	..	..	..	..	..	..	8	..

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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
7. Scarlet fever	245	25	31	44	33	24	157	59	15	1
8. Whooping cough	205	104	49	26	8	9	196	9	..	..
9. Diphtheria and croup	841	91	189	155	119	87	641	155	21	10
10. Influenza	140	8	5	4	..	..	17	2	2	4
11. Miliary fever	..	..	..	..	..	..	..	..	..	..
12. Asiatic cholera	..	..	..	..	..	..	..	..	..	..
13. Cholera nostras	..	..	..	..	..	..	..	..	..	..
14. Dysentery	72	15	1	3	..	2	21	1	..	2
15. Plague	..	..	..	..	..	..	..	..	..	..
16. Yellow fever	..	..	..	..	..	..	..	..	..	..
17. Leprosy	..	..	..	..	..	..	..	..	..	..
18. Erysipelas	143	69	5	1	..	..	75	..	2	4
19. Other epidemic diseases	9	4	1	..	2	..	7	..	..	..
20. Pyæmia septicæmia	19	10	1	..	..	..	11	..	..	..
21. Glanders	..	..	..	..	..	..	..	..	..	..
22. Malignant pustule	..	..	..	..	..	..	..	..	..	..
23. Hydrophobia	4	..	..	1	..	2	3	..	1	..
24. Actinomycosis	1	..	..	..	..	..	..	..	..	..
24a. Trichinosis	1	..	..	..	..	..	..	..	..	..
25. Pellagra	..	..	..	..	..	..	..	..	..	..
26. Tuberculosis of larynx	19	..	..	..	..	..	..	..	..	2
27. Tuberculosis of lungs	3,314	25	22	11	15	2	75	31	80	288
28. Tubercular meningitis	351	84	66	60	27	16	253	41	17	12
29. Abdominal tuberculosis	87	17	2	2	..	1	22	4	2	6
30. Potts' disease	29	..	..	1	1	1	3	6	7	1
31. Cold abscess	4	1	..	..	..	..	1	..	..	..
32. White swelling	19	..	..	..	1	2	3	4	2	6
33. Tuberculosis of other organs	17	1	2	1	1	..	5	1	2	1
34. General tuberculosis	22	6	2	..	1	..	9	..	1	1
35. Scrofula	2	2	..	..	..	..	2	..	..	..
36. Syphilis	103	79	4	..	1	1	85	..	..	..
37. Gonorrhœa (adults)	2	..	..	..	..	..	..	..	..	..
38. Gonorrhœa (children)	3	3	..	..	..	..	3	..	..	..
39. Cancer, etc., of the mouth	20	..	..	..	..	..	..	..	..	..
40. Cancer of stomach, liver	644	..	..	..	..	1	1	..	..	..
41. Cancer of intestines, rectum	244	..	..	..	1	..	1	..	..	2
42. Cancer of female genital organs	447	..	..	..	..	..	..	..	1	2

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
8	3	..	1	1	..	..	..	..	..	..	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..
2	2	5	..	..	4	..	..	1	..	..	..	..	..	10	..
..	2	5	4	9	12	10	10	10	14	14	11	9	5	10	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	3	2	2	1	1	3	6	4	5	7	3	6	3	2	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	4	3	7	4	8	6	3	7	4	4	4	1	3	3	..
..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..
1	1	..	..	1	2	..	1	2	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	5	3	6	..	1	..	..	..	..	..	..	..	..	..	..
503	569	489	416	283	181	127	112	70	42	28	12	1	4	194	..
14	6	3	3	1	1	..	..	..	..	..	..	..	..	21	..
7	12	8	6	5	4	5	1	1	2	1	1	..	..	6	1
1	1	4	1	..	1	1	1	2	..	..	..	..	..	2	..
..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
..	..	1	..	1	..	..	2	..	..	..	..	..	..	..	..
2	2	2	1	1	..	..	..	..	..	..	..	..	..	1	..
4	4	..	1	..	..	1	1	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	2	2	5	1	3	3	..	..	..	..	..	..	..	8	..
..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	..	1	1	4	1	2	4	4	..	1	1	..	..	..
2	7	9	19	59	59	98	94	104	90	56	30	7	9	4	..
2	8	6	12	27	25	37	29	37	21	17	10	7	3	2	..
2	7	26	40	60	77	62	50	57	25	18	11	6	3	11	..

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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
43. Cancer of the breast	268	..	..	..	..	..	..	..	..	..
44. Cancer of the skin	21	1	..	..	..	..	1	..	..	1
45. Cancer of other organs and unspecified	187	1	..	1	2	..	4	1	1	2
46. Other tumors (except of female genital organs)	26	1	..	..	..	..	1	..	..	..
47. Acute articular rheumatism	222	1	2	3	3	7	16	30	25	15
48. Chronic rheumatism and gout	85	1	..	..	..	1	2	3	5	2
49. Scurvy	5	1	..	1	..	..	2	1	..	1
50. Diabetes	371	..	..	..	..	1	1	1	5	4
51. Exophthalmic goitre	27	..	..	..	..	..	..	.	..	3
52. Addison's disease	4	..	..	..	..	..	..	..	..	..
53. Leukæmia	23	1	..	..	..	1	2	2	2	..
54. Anæmia, chlorosis	63	5	1	..	1	..	7	1	2	4
55. Other general diseases	..	..	..	..	..	..	..	..	..	..
56. Alcoholism, acute and chronic	113	..	..	..	..	..	..	..	..	..
57. Lead poisoning	..	..	..	..	..	..	..	..	..	..
58. Other chronic poisonings of occupation	..	..	..	..	..	..	..	..	..	..
59. Other chronic poisonings	6	..	..	..	..	..	..	..	..	1
II.—Diseases of Nervous System and Organs of Sense.										
60. Encephalitis	4	..	..	..	..	..	..	1	..	..
61. Simple meningitis	539	130	100	40	35	21	326	67	46	26
61a. (of which) cerebro-spinal meningitis	357	60	63	31	25	15	194	52	38	24
62. Locomotor ataxia	22	..	..	..	..	..	..	..	..	..
63. Other diseases of spinal cord	71	..	..	..	2	..	2	4	1	1
64. Apoplexy, congestion of brain	1,371	8	3	1	..	..	12	..	2	2
65. Softening of brain	31	..	..	..	..	..	..	..	..	..
66. Paralysis, unspecified	109	..	2	..	..	..	2	1	..	..
67. General paresis	68	..	..	..	..	..	..	1	..	..
68. Other forms of insanity	27	..	..	..	..	..	..	..	..	1
69. Epilepsy	62	..	2	..	1	1	4	5	3	3
70. Convulsions (not puerperal)	3	..	..	..	..	..	..	2	..	..
71. Convulsions of infants	326	272	36	10	5	3	326	..	..	..
72. Tetanus, trismus	31	14	1	1	..	..	16	1	..	1
73. Chorea	4	..	..	..	..	..	..	2	2	..
74. Other nervous diseases	73	1	1	..	2	2	6	3	4	4
75. Diseases of the eyes	4	1	1	1	..	..	3	..	..	..
76. Diseases of the ears	75	17	10	5	3	..	35	4	5	3

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over	Colored.	Chinese.
1	1	9	22	40	35	32	42	27	19	20	8	7	5	5	..
..	..	..	1	1	1	2	2	3	2	3	2	1	1	..	..
3	5	10	10	24	24	23	23	21	12	9	10	2	3	1	..
..	2	2	2	2	2	4	4	..	3	2	..	..	2	1	..
7	16	13	9	11	13	13	10	14	14	6	8	..	2	8	..
..	3	3	7	3	7	2	3	7	12	11	8	4	3	..	..
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
8	11	6	17	11	26	44	42	62	58	42	25	5	3	3	..
1	1	3	2	3	3	2	5	3	1	..	..	..	..	1	..
1	..	1	1	..	1	..	..	..	..	..	..	..	..	..	..
..	2	4	2	1	2	2	..	1	1	2	..	..	..	1	..
4	7	5	3	6	5	5	5	3	2	2	1	1	..	3	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	9	28	25	23	9	9	1	2	1	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	1	1	..	..	..	..	1	1	..	..	1	..	..	..	..
..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..
15	18	12	3	6	4	7	4	2	2	1	..	..	..	15	..
12	14	10	2	3	3	2	1	1	..	1	..	..	..	11	..
..	..	1	3	2	4	3	4	3	..	2	..	..	..	..	..
3	4	2	3	7	9	6	7	10	7	2	2	1	..	2	..
3	6	23	35	59	90	147	150	190	191	199	143	76	43	44	..
..	..	1	1	1	1	1	3	5	3	1	5	4	5	1	..
1	1	2	1	4	6	10	11	14	13	13	14	9	7	2	..
..	3	4	7	9	11	2	5	5	5	5	2	6	3	4	..
1	4	5	5	..	1	1	3	2	1	2	..	1	..	..	..
5	8	5	5	9	4	1	3	2	2	3	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..
..	1	2	2	1	..	3	2	2	..	..	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	8	7	6	8	6	5	1	4	3	3	1	..	..	2	..
..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
6	4	3	3	2	3	3	1	1	1	..	..	..	1	..	..

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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
III.—Diseases of Circulatory System.										
77. Pericarditis	17	..	1	..	..	..	1	3	2	1
78. Acute endocarditis	242	6	..	2	2	2	12	11	7	9
79. Organic heart diseases	2,787	13	5	3	4	6	31	55	70	66
80. Angina pectoris	64	..	..	..	..	..	..	..	1	..
81. Diseases of arteries, aneurism, etc	141	..	..	..	..	..	..	..	..	..
82. Embolism, thrombosis	96	2	1	..	..	..	3	1	..	1
83. Diseases of veins (hæmorrhoids, varices, phlebitis, etc.)	16	1	..	..	..	..	1	1	..	..
84. Diseases of lymphatics (lymphangitis, etc.)	9	6	2	1	..	..	9	..	..	..
85. Hæmorrhage	38	26	..	..	..	1	27	1	2	2
86. Other diseases of circulatory system	..	..	..	..	..	..	..	..	..	..
IV.—Diseases of Respiratory System.										
87. Diseases of the nasal fossæ	1	..	..	..	..	..	..	..	1	..
88. Diseases of the larynx	24	5	5	3	1	..	14	1	..	..
89. Diseases of thyroid gland	3	1	..	..	..	..	1	..	..	..
90. Acute bronchitis	669	346	113	31	8	8	506	7	1	4
91. Chronic bronchitis	136	1	3	3	..	1	8	..	4	..
92. Broncho-pneumonia	2,432	1,045	553	153	62	40	1,853	46	13	7
93. Pneumonia	2,423	265	199	92	41	29	626	62	42	39
94. Pleurisy	114	13	17	9	6	1	46	6	2	..
95. Congestion of lungs, pulmonary apoplexy	61	10	..	..	..	..	10	1	..	1
96. Gangrene of lung	13	..	..	..	..	..	..	..	..	2
97. Asthma	77	..	..	..	..	..	..	..	..	..
98. Pulmonary emphysema	34	..	..	..	..	..	..	..	..	..
99. Other diseases of respiratory system (phthisis excepted) ..	31	..	1	..	..	..	1	2	..	..
V.—Diseases of Digestive System.										
100. Diseases of mouth and adnexa	6	1	..	2	1	..	4	1	..	..
101. Diseases of pharynx	18	2	1	..	1	..	4	6	1	..
102. Diseases of œsophagus	1	1	..	..	..	..	1	..	..	..
103. Ulcer of the stomach	53	..	..	..	..	..	..	..	1	3
104. Other diseases of stomach (cancer excepted)	168	30	4	2	5	1	42	3	1	2
105. Diarrhœa and enteritis (under two years)	2,623	2,214	409	..	..	..	2,623	..	..	..
(Of which) chronic diarrhœa	..	..	..	..	..	..	..	..	..	..
106. Diarrhœa and enteritis (two years and over)	364	..	..	56	28	18	102	24	6	2
107. Intestinal parasites	..	..	..	..	..	..	..	..	..	..
108. Hernia, intestinal obstruction	291	29	2	..	1	1	33	3	..	1
109. Other diseases of intestines	22	4	1	..	..	..	5	1	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
..	..	2	..	1	3	..	1	..	..	1	1	1	..	1	..
9	12	14	21	17	9	16	18	19	22	19	17	6	4	6	..
96	100	124	161	159	187	257	239	322	303	260	178	107	72	85	1
..	..	1	4	2	6	2	6	8	12	14	6	2	..	..	..
..	2	3	2	4	4	5	10	14	24	21	18	15	19	4	..
2	2	3	10	5	6	6	15	11	12	10	7	2	..	1	..
..	..	3	1	1	1	2	1	1	1	2	1	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	1	1	..	3	..	..	1	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	1	..	1	1	2	..	1	..	..	2	1	..	..	..	..
..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..
1	..	1	1	1	6	5	10	20	27	21	23	24	11	14	..
3	..	2	5	5	..	7	9	19	20	10	20	17	7	2	..
17	19	12	21	27	27	30	45	63	67	61	48	49	27	71	..
73	95	117	116	126	130	139	177	182	170	139	100	47	43	76	..
11	8	7	8	6	2	5	3	1	5	3	..	1	..	2	..
..	4	..	1	2	..	..	4	6	5	10	7	4	6	1	..
1	3	..	..	3	..	1	2	1	..	..	..	..	..	3	..
..	2	1	3	3	7	7	8	12	11	12	4	4	3	..	..
..	..	2	1	..	1	3	3	4	6	7	4	1	2	..	..
3	2	2	1	3	1	3	3	4	2	3	..	1	..	2	..
..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
..	4	1	1	..	..	1	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5	6	7	3	11	4	1	3	4	..	1	1	2	1	1	..
1	4	8	4	6	9	10	10	8	16	8	14	15	7	3	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	51	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	6	8	12	7	12	24	18	26	30	28	19	19	15	2	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	15	17	23	30	22	22	27	27	24	19	13	8	1	6	..
..	5	2	1	..	1	1	1	..	1	2	..	2	..	1	..

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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
110. Acute yellow atrophy of liver...	12	..	1	..	1	..	2	..	..	..
111. Hydatid tumor of liver.....	..	..	..	..	..	..	..	..	..	..
112. Cirrhosis of liver.....	373	..	..	..	1	..	1	2	2	..
113. Biliary calculi	82	..	..	..	..	..	..	..	..	..
114. Other diseases of liver..	61	2	2	..	..	..	4	1	..	..
115. Diseases of spleen.....	2	..	..	..	..	..	..	..	..	..
116. Simple peritonitis (non-puerperal).....	41	2	..	..	..	1	3	4	2	2
117. Other diseases of digestive system (except tuberculosis and cancer).....	7	..	..	..	1	..	1	..	..	..
118. Appendicitis and iliac abscess..	211	..	..	..	1	2	3	18	38	20
VI.—Diseases of Genito-urinary System.										
119. Acute nephritis.....	328	21	11	11	10	4	57	13	16	10
120. Bright's disease.....	2,478	5	..	1	1	1	8	14	13	25
121. Other diseases of kidneys and adnexa.....	35	1	..	..	1	..	2	..	..	..
122. Urinary calculus	6	..	..	..	..	..	..	..	..	..
123. Diseases of bladder.....	23	1	..	..	1	..	2	..	..	..
124. Diseases of urethra, urinary abscess, etc	9	..	..	..	..	..	..	..	..	..
125. Diseases of the prostate.....	..	..	..	..	..	..	..	..	..	..
126. Non-venereal diseases of male genital organs.....	..	..	..	..	..	..	..	..	..	..
127. Metritis	8	..	..	..	..	..	..	..	..	1
128. Uterine hæmorrhage (non-puerperal).....	5	..	..	..	..	..	..	..	..	1
129. Uterine tumor (not cancer).....	94	..	..	..	..	..	..	..	..	..
130. Other diseases of uterus.....	34	..	..	..	..	..	..	..	..	3
131. Ovarian cysts and tumors.....	50	..	..	..	..	..	..	..	..	3
132. Other diseases of female genital organs.....	133	..	..	..	..	..	..	..	..	8
133. Diseases of breast (not puerperal, nor cancer).....	2	..	..	..	..	..	..	..	..	..
VII.—Puerperal Diseases.										
134. Accidents of pregnancy.....	173	..	..	..	..	..	..	..	..	3
135. Puerperal hæmorrhage.....	43	..	..	..	..	..	..	..	..	1
136. Other accidents of labor.....	135	..	..	..	..	..	..	..	..	4
137. Puerperal septicæmia.....	263	..	..	..	..	..	..	..	..	19
138. Puerperal albuminuria and convulsions.....	123	..	..	..	..	..	..	..	..	7
139. Puerperal phlegmasia alba dolens.....	2	..	..	..	..	..	..	..	..	..
140. Other accidents of parturition, sudden death.....	24	..	..	..	..	..	..	..	..	..
141. Puerperal diseases of breast....	..	..	..	..	..	..	..	..	..	..
VIII.—Diseases of Skin and Cellular Tissue.										
142. Gangrene.....	63	1	..	1	1	..	3	..	..	..
143. Carbuncle	10	4	..	1	..	..	5	..	..	1

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.
3	2	1	2	..	..	..	..	1	..	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	17	27	44	59	47	39	35	31	31	12	10	4	6	4
2	3	4	10	4	13	12	10	10	4	4	3	1	2	1
1	2	3	3	9	4	9	5	6	3	5	3	2	1	2
..	1	..	1	..	..	..	..	..	..	..	..	..	..	..
1	5	8	8	4	..	..	..	2	..	1	1	..	..	..
2	1	1	..	..	..	..	..	1	1	..	..	..	..	..
18	18	18	18	16	12	10	11	3	3	4	1	..	..	5
23	28	23	30	32	15	11	18	16	14	11	7	2	2	13
65	109	139	175	209	197	235	235	256	264	207	177	95	55	69
3	1	4	3	3	4	2	4	3	1	1	2	2	..	..
1	2	..	..	..	..	..	2	..	..	1	..	..	..	..
..	..	2	1	1	..	3	2	..	3	1	3	3	2	2
2	..	1	2	..	3	1	..	..	..	..	..	..	..	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	2	2	1	..	..	1	..	..	..	..	..	..	..	1
..	2	..	2	..	..	..	..	..	..	..	..	..	..	1
..	5	10	10	32	16	6	6	5	1	2	..	1	..	7
4	5	7	5	5	1	2	1	..	1	..	..	..	..	2
7	10	2	3	5	3	7	4	5	..	..	..	..	1	2
33	28	21	23	17	1	2	..	..	..	..	..	..	..	12
..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
29	49	55	26	8	2	1	..	..	..	..	..	..	..	4
5	8	10	11	6	2	..	..	..	..	..	..	..	..	1
18	28	25	43	14	3	..	..	..	..	..	..	..	..	3
66	65	63	33	14	2	1	..	..	..	..	..	..	..	7
32	30	30	14	9	1	..	..	..	..	..	..	..	..	1
..	2	..	..	..	..	..	..	..	..	..	..	..	..	..
3	8	7	6	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	1	..	..	1	..	2	6	10	9	12	6	5	7	2
..	..	..	1	..	..	..	..	2	1	..	..	..	..	..

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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
144. Phlegmon, acute abscess	35	10	..	2	..	..	12	2	1	2
145. Other diseases of skin and adnexa	26	16	1	..	..	..	17	..	..	1
IX.-Diseases of Locomotory System.										
146. Diseases of bones (non-tuberculous)	47	16	9	3	..	1	29	4	4	4
147. Arthritis, other diseases of joints (except tuberculosis and rheumatism)	6	1	..	..	..	1	2	..	..	..
148. Amputation	..	..	..	..	..	..	..	..	..	..
149. Other diseases of organs of locomotion	..	..	..	..	..	..	..	..	..	..
X.—Malformations.										
150. Congenital malformations	288	272	11	..	..	1	284	3	..	1
XI.—Diseases of Infancy.										
151. Congenital debility, icterus and sclerema	1,611	1,608	2	..	1	..	1,611	..	..	..
151a. Injury during birth	109	109	..	..	..	..	109	..	..	..
152. Other diseases peculiar to infancy	24	24	..	..	..	..	24	..	..	..
153. Neglect	3	3	..	..	..	..	3	..	..	..
XII.—Diseases of Old Age.										
154. Senile debility	566	..	..	..	..	..	..	..	..	..
XIII.—External Causes.										
155. Suicide by poison	41	..	..	..	..	..	..	..	..	2
156. Suicide by asphyxia	57	..	..	..	..	..	..	..	1	..
157. Suicide by hanging or strangulation	10	..	..	..	..	..	..	..	..	..
158. Suicide by drowning	6	..	..	..	..	..	..	..	..	..
159. Suicide by firearms	14	..	..	..	..	..	..	..	..	1
160. Suicide by cutting instruments	6	..	..	..	..	..	..	..	..	..
161. Suicide by precipitation from height	17	..	..	..	..	..	..	..	..	1
162. Suicide by crushing	..	..	..	..	..	..	..	..	..	..
163. Suicide by other methods	..	..	..	..	..	..	..	..	..	..
164. Fractures	24	..	..	1	1	..	2	3	1	..
165. Dislocations	..	..	..	..	..	..	..	..	..	..
166. Other accidental injuries	364	7	10	21	11	20	69	44	7	12
167. Burn, by fire, scald	204	7	12	24	19	15	77	45	9	4
168. Burning by corrosive substances	..	..	..	..	..	..	..	..	..	..
169. Sunstroke	46	9	1	..	..	2	12	2	..	..
170. Freezing	..	..	..	..	..	..	..	..	..	..
171. Electrical shock	..	..	..	..	..	..	..	..	..	..
172. Accidental drowning	34	..	1	..	..	..	1	..	2	3
173. Inanition (starvation)	2	..	..	..	..	..	..	..	..	..

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
1	..	3	3	..	3	1	1	2	3	..	..	1	..	..	..
2	..	1	..	..	1	..	1	..	1	..	1	..	1	..	..
1	2	1	..	..	1	1	..	..	..	..	..	..	..	5	..
..	..	2	..	..	..	..	..	..	..	1	..	1	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	66	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	1	3	15	39	98	113	138	159	8	..
8	5	7	2	5	3	4	1	3	1	..	..	..	..	..	..
1	5	9	8	6	10	3	6	5	1	1	1	..	..	..	..
3	..	..	1	..	2	..	2	1	..	..	1	..	..	..	..
1	3	1	..	1	..	..	..	..	..	..	..	..	..	..	..
2	2	2	2	4	..	1	..	..	..	..	..	..	..	..	..
..	1	1	..	..	..	2	..	1	1	..	..	..	..	..	..
3	1	4	3	..	2	..	2	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	1	..	..	3	2	..	..	1	4	1	1	5	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	10	18	22	21	15	22	16	27	18	20	15	9	12	7	..
7	7	9	5	3	7	8	2	1	5	6	4	4	1	2	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	4	..	1	3	1	2	2	4	3	2	3	3	2	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	5	7	6	4	1	1	..	2	..	..	..	..	..	1	..
..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..

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Cause of Death.	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
174. Inhalation of noxious gas, not suicidal	88	1	2	1	..	2	6	5	3	7
175. Other acute poisoning	47	1	3	2	1	1	8	1	1	3
176. Other external violence	118	22	1	1	1	..	25	1	..	5
(Of which)										
a. Homicide, by blows	9	2	..	..	1	..	3	..	..	..
b. Homicide, by sharp instruments	8	1	..	..	..	..	1	..	..	..
c. Homicide, by gunshot	29	..	..	..	..	..	..	..	..	2
d. Homicide, by poison	1	..	..	..	..	..	..	..	..	..
e. Homicide, by other methods	10	4	..	..	..	..	4	1	..	..
XIV.—Ill-defined or Not Specified Causes.										
177. Dropsy	..	..	..	..	..	..	..	..	..	..
178. Sudden death, not puerperal	..	..	..	..	..	..	..	..	..	..
179. Ill-defined causes	460	403	49	3	2	1	458	1	..	..
I.—General diseases	9,277	710	608	418	270	185	2,191	389	223	408
a. Tuberculous diseases	3,862	134	94	75	46	22	371	87	115	313
b. Cancer	2,831	2	..	1	3	1	7	1	2	7
II.—Diseases of nervous system and organs of sense	2,820	443	156	58	48	27	732	91	63	41
III.—Diseases of circulatory system	3,410	54	9	6	6	9	84	72	82	70
IV.—Diseases of respiratory system	6,018	1,686	891	291	118	79	3,065	125	63	53
V.—Diseases of digestive system	4,336	2,285	420	60	40	23	2,828	63	52	30
VI.—Diseases of genito-urinary system	3,205	28	11	12	13	5	69	27	29	51
VII.—Puerperal diseases	763	..	..	..	..	..	..	..	..	34
VIII.—Diseases of skin and cellular tissue	134	31	1	4	1	..	37	2	1	4
IX.—Diseases of locomotory system	53	17	9	3	..	2	31	4	4	4
X.—Malformations	288	272	11	..	..	1	284	3	..	1
XI.—Diseases of infancy	1,747	1,744	2	..	1	..	1,747	..	..	..
XII.—Diseases of old age	566	..	..	..	..	..	..	..	..	..
XIII.—External causes	1,078	47	30	50	33	40	200	101	24	38
a. Suicide	151	..	..	..	..	..	..	..	1	4
b. Homicide	57	7	..	..	1	..	8	1	..	2
c. Accident	870	40	30	50	32	40	192	100	23	32
XIV.—Causes ill-defined	460	403	49	3	2	1	458	1	..	..
Total females	34,155	7,720	2,197	905	532	372	11,726	878	541	743

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20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
6	10	3	3	7	7	8	5	9	3	2	2	2	..	5	..
9	8	5	3	3	1	4	..	..	1	..	..	..	..	..	..
23	12	18	7	9	5	3	4	3	1	2	..	..	..	7	..
..	..	1	1	2	..	1	..	1	..	..	..	..	..	..	..
1	..	1	1	2	1	..	..	1	..	..	..	..	..	1	..
7	5	7	2	2	2	..	1	..	1	..	..	..	..	4	..
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
1	1	1	..	..	1	..	1	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	1	..	..	..	..	..	..	..	24	..
631	736	689	646	600	528	500	451	449	336	244	147	59	50	321	1
533	599	510	434	293	191	135	117	73	44	29	13	1	4	224	1
11	28	60	105	212	225	255	242	253	173	123	72	31	24	23	..
38	57	67	76	109	139	189	194	241	228	232	167	97	59	77	..
107	116	151	200	189	219	288	290	376	374	327	228	133	95	97	1
109	135	144	158	178	176	200	265	312	313	268	207	148	99	171	1
51	89	105	130	146	124	130	120	119	113	84	65	53	34	76	1
139	193	212	255	304	240	270	272	285	284	223	189	103	60	111	..
153	190	190	133	51	10	2	..	..	..	..	..	..	..	16	..
4	1	4	4	1	4	3	8	14	14	12	7	6	8	2	..
1	2	3	..	..	1	1	..	..	..	1	..	1	..	5	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	68	..
..	..	..	..	..	..	1	3	15	39	98	113	138	159	8	..
74	74	84	63	70	56	59	40	..	..	..	..	..	..	23	..
18	17	24	16	16	17	10	11	10	3	2	2	..	..	..	..
9	6	10	4	7	4	1	2	2	1	..	..	..	..	5	..
47	51	50	43	47	35	48	27	45	34	33	25	23	15	18	..
..	..	..	..	..	..	1	..	..	..	..	..	..	..	24	..
1,307	1,593	1,649	1,665	1,648	1,497	1,644	1,643	1,868	1,739	1,524	1,150	761	579	1,000	4

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Total Deaths according to Sex and

	All Ages.	Under 1 Year.	1	2	3	4	Total Under 5.	5	10	15
Borough of Manhattan—										
Males	22,184	5,157	1,337	533	288	161	7,476	528	255	416
Females	17,647	4,307	1,186	430	225	154	6,302	402	269	383
Total both sexes	39,841	9,464	2,523	963	513	315	13,778	930	524	799
Borough of The Bronx—										
Males	3,466	533	191	96	51	33	904	82	54	96
Females	2,811	496	187	88	56	25	852	57	39	67
Total both sexes	6,277	1,029	378	184	107	58	1,756	139	93	163
Borough of Brooklyn—										
Males	13,523	3,092	862	389	262	137	4,742	373	177	306
Females	11,501	2,361	709	359	218	158	3,805	348	195	252
Total both sexes	25,024	5,453	1,571	748	480	295	8,547	721	372	558
Borough of Queens—										
Males	2,001	507	96	44	23	31	701	53	27	50
Females	1,582	396	80	24	26	26	552	57	28	31
Total both sexes	3,583	903	176	68	49	57	1,253	110	55	81
Borough of Richmond—										
Males	874	179	30	8	9	2	228	20	11	12
Females	614	161	36	4	6	8	215	14	10	10
Total both sexes	1,488	340	66	12	15	10	443	34	21	22
City of New York.										
Males	42,048	9,468	2,516	1,070	633	364	14,051	1,056	524	880
Females	34,155	7,720	2,197	905	532	372	11,726	878	541	743
Total both sexes	76,203	17,188	4,713	1,975	1,165	736	25,777	1,934	1,065	1,623

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Age, by Boroughs and City, Year 1906.

20	25	30	35	40	45	50	55	60	65	70	75	80	85 and over.	Colored.	Chinese.
756	1,033	1,289	1,460	1,412	1,417	1,320	1,225	1,138	940	707	409	241	162	660	75
693	809	835	869	888	810	862	838	955	866	721	518	341	286	591	3
1,449	1,842	2,124	2,329	2,300	2,227	2,182	2,063	2,093	1,806	1,428	927	582	448	1,251	78
153	227	247	287	258	225	186	165	181	151	96	87	40	27	93	..
133	182	183	176	140	130	142	126	150	115	124	89	72	34	111	..
286	409	430	463	398	355	328	291	331	266	220	176	112	61	204	..
460	557	733	825	798	705	710	634	684	612	504	354	227	122	252	6
427	513	530	507	541	459	548	599	638	644	563	440	281	211	251	1
887	1,070	1,263	1,332	1,339	1,164	1,258	1,233	1,322	1,256	1,067	794	508	333	503	7
80	87	92	101	123	135	86	90	100	91	75	49	34	27	38	..
38	68	69	82	60	73	68	61	81	88	79	69	50	28	42	..
118	155	161	183	183	208	154	151	181	179	154	118	84	55	80	..
35	39	46	59	59	51	44	37	47	51	51	35	29	20	13	1
16	21	32	32	20	25	25	16	44	26	36	34	17	21	5	..
51	60	78	91	79	76	69	53	91	77	87	69	46	41	18	1
1,484	1,943	2,407	2,732	2,650	2,533	2,346	2,151	2,150	1,845	1,433	934	571	358	1,056	82
1,307	1,593	1,649	1,665	1,648	1,497	1,644	1,643	1,868	1,739	1,524	1,150	761	579	1,000	4
2,791	3,536	4,056	4,397	4,298	4,030	3,990	3,794	4,018	3,584	2,957	2,084	1,332	937	2,056	86

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Deaths According to Nativity of

Country.	Nativity of Deceased. Borough of—		
	Manhattan.	The Bronx.	Brooklyn.
United States	24,266	3,801	16,184
Ireland	5,049	746	2,811
Germany	3,185	781	2,337
Italy	1,680	226	824
Russia	1,594	151	728
England	715	137	586
Austro-Hungary	1,123	104	248
Scotland	236	40	179
British America	193	46	147
Switzerland	124	33	54
France	231	25	60
Bohemia	190	14	1
Roumania	159	12	14
Poland	65	14	68
Syria	18	3	10
Sweden	188	37	224
Norway	55	18	183
Denmark	34	7	54
Finland	35	9	27
Holland	36	5	31
Cuba	17	4	9
Other West Indies	75	18	51
Belgium	15	3	5
Spain	23		14
Greece	54	3	8
China	77		8
Australia	3	1	6
Other Foreign	97	13	52
Unknown	294	26	101
Mixed nationalities			
Total	39,831	6,277	25,024

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Deceased and Parents of Deceased.

Nativity of Deceased.			Nativity of Parents of Deceased.					
Borough of—		City of New York.	Borough of—					City of New York.
Queens.	Richmond.		Manhattan.	The Bronx.	Brooklyn.	Queens.	Richmond.	
2,326	975	47,552	6,678	1,273	6,041	893	437	15,322
320	178	9,104	8,671	1,378	4,967	531	304	15,851
547	96	6,946	4,545	1,177	3,497	864	152	10,235
84	36	2,850	5,087	524	2,409	228	93	8,341
34	9	2,516	3,338	287	1,551	84	34	5,294
77	52	1,567	686	127	670	88	56	1,627
35	11	1,521	2,369	163	496	62	38	3,119
25	10	490	290	51	214	33	17	605
11	9	406	125	31	94	10	10	270
8	7	226	116	28	52	11	6	213
20	10	346	277	28	71	25	15	416
14	1	220	315	23		20		358
....	1	186	278	21	41		2	342
25	13	185	110	28	157	85	18	398
....		31	29	3	28			60
7	15	471	252	61	343	18	14	688
5	20	281	70	24	282	11	20	407
8	6	109	43	7	65	10	8	133
3	5	79	54	17	43	3	3	120
1	5	78	42	5	35		4	86
3		33	19	5	8	1		33
4	2	150	138	20	59	7	1	225
1		24	17	3	8			28
1		38	27	1	18	1		47
1		66	69	5	12	1		87
1	1	87	71		6		1	78
....		10	3					3
5	4	171	70	16	40	2	4	132
17	22	460	2,887	340	1,084	134	118	4,563
....			3,164	631	2,733	461	133	7,122
3,583	1,488	76,203	39,831	6,277	25,024	3,583	1,488	76,203

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Deaths by Accident and Negligence.

	Borough of					City of New York.
	Manhattan.	The Bronx.	Brooklyn.	Queens	Richmond.	
Fractures and Contusions—						
Crushed by boats, etc.	5	..	..	..	..	5
" by derricks, etc.	5	3	1	2	1	12
" by diving	3	..	3	1	..	7
" by elevators	43	2	5	..	2	52
" by machinery	15	3	9	1	1	29
" by falling buildings	9	..	5	1	..	15
" by falling rocks, stones, etc.	31	4	9	5	..	49
" by falling bodies	44	7	26	4	3	84
" by explosions	9	7	7	6	..	29
Other causes	15	3	8	1	1	28
Not defined by Coroners	93	3	29	6	2	133
Falls—						
Down air-shafts	4	2	..	..	..	6
" areaways	3	..	..	..	..	3
" elevator shafts	37	4	4	..	..	45
" stairs	71	8	53	6	..	138
From buildings	88	8	15	1	3	115
" fire-escapes	22	..	4	..	..	26
" roofs	34	2	5	1	..	42
" scaffolds	21	4	17	1	2	45
" windows	91	6	30	..	..	127
On shipboard	13	..	22	1	..	36
On streets and sidewalks	25	3	21	..	..	49
Others	70	9	68	7	4	158
Not specified by Coroners	101	1	8	3	..	113
Street vehicles—						
Run over by wagons, trucks, etc.	157	12	45	9	..	223
Falls from wagons, trucks, etc.	34	3	20	1	2	60
Run over by automobiles	27	7	20	8	2	64
Run over by other vehicles	5	1	2	..	..	8
Railroads—						
Electric	81	19	130	13	5	248

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	Borough of					City of New York.
	Manhattan.	The Bronx.	Brooklyn.	Queens	Richmond.	
Railroads—						
Elevated	12	2	4	..	..	18
Steam	38	72	8	57	10	185
Subway	17	2	..	..	..	19
Horse cars	2	..	..	..	..	2
Falls from cars	35	3	4	2	..	44
Not specified by Coroners	..	..	2	..	..	2
Wounds—						
Gunshot	11	5	4	5	3	28
Incised	2	..	..	..	..	2
Lacerated	5	..	6	2	..	13
Others	6	1	6	5	..	18
Not specified by Coroners	1	..	..	..	..	1
Burns and Scalds—						
From Lamps	5	1	9	..	..	15
" stoves, oil, gas, etc	27	6	16	3	1	53
Playing with matches	18	2	11	3	..	34
Others	24	3	33	12	..	72
Not specified by Coroners	43	..	7	4	2	56
Scalds—						
By fluids	56	11	32	9	..	108
Steam	2	..	5	..	2	9
Not specified by Coroners	..	..	2	..	..	2
Conflagrations	16	2	17	1	1	37
Sunstroke	70	5	28	7	2	112
Electric current	8	3	10	3	..	24
Drowning	219	42	134	59	42	496
Illuminating gas	125	14	75	12	1	227
Other gases, smoke, etc	17	3	5	5	..	30
Neglect and exposure	3	2	5	1	3	14

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	Borough of					City of New York
	Manhattan.	The Bronx.	Brooklyn.	Queens	Richmond.	
Poisons—						
Acetanilid	1	..	..	..	..	1
Alcohol	2	..	2	1	..	5
Ammonia	..	..	1	..	..	1
Arsenic	..	..	2	..	..	2
Atropine	1	..	..	..	..	1
Bichloride of mercury	2	..	..	..	..	2
Bromide	..	..	1	..	..	1
Camphorated oil	..	..	1	..	..	1
Carbolic acid	5	..	6	2	..	13
Caustic soda	..	..	..	1	..	1
Chloral	2	..	..	..	..	2
Chlorate of potash	..	..	1	..	..	1
Cream of soda	..	..	1	..	..	1
Cresoline	..	..	1	..	..	1
Cyanide of potassium	..	..	1	..	..	1
Ergot	..	1	..	..	..	1
Hydrochloric acid	..	1	..	..	..	1
Jamaica rum	..	..	..	1	..	1
Liniment	..	..	1	..	..	1
Lysol	1	..	..	..	..	1
Mercury	1	..	..	..	..	1
Morphine	1	1	1	..	..	3
Nitrous acid	1	..	..	..	..	1
Oleum gaultheriæ	1	..	..	..	..	1
Oil of wintergreen	..	..	1	..	..	1
Opium	4	2	1	..	..	7
Oxalic acid	..	..	1	..	..	1
Paraldehyde	1	..	..	..	..	1
Phosphorus	..	..	1	..	..	1
Potash lye	..	..	..	1	..	1
Ptomaines	10	1	6	1	..	18
Roach powder	1	..	1	..	..	2
Strychnine	1	..	1	..	..	2
Veronal	1	..	..	..	..	1
Wood alcohol	1	..	3	..	..	4
Unknown poisons	8	1	..	..	..	9



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	Borough of					City of New York
	Manhattan.	The Bronx.	Brooklyn.	Queens	Richmond.	
Suffocation—						
Caving in of embankment	4	2	3	5	..	14
Food in larynx	5	..	2	..	..	7
Foreign body in larynx	2	2	..	..	..	4
Overlaid by mother	5	1	2	2	..	10
Other causes	12	1	5	..	..	18
Not specified by Coroners	3	..	1	..	..	4
Circumcision	7	..	3	..	..	10
Criminal abortion	19	..	6	3	..	28
Surgical operation	22	..	..	..	..	22
Caisson disease	..	..	..	1	..	1

RECAPITULATION.

	Borough of					City of New York.
	Manhattan.	The Bronx.	Brooklyn.	Queens	Richmond.	
Fractures and contusions	272	32	102	27	10	443
Falls	580	47	247	20	9	903
Vehicles	223	23	87	18	4	355
Railroads	185	98	148	72	15	518
Wounds	25	6	16	12	3	62
Burns and Scalds	175	23	115	31	5	349
Conflagrations	16	2	17	1	1	37
Sunstroke	70	5	28	7	2	112
Electric current	8	3	10	3	..	24
Drowning	219	42	134	59	42	496
Illuminating gas	125	14	75	12	1	227
Other cases, smoke, etc.	17	3	5	5	..	30
Neglect and exposure	3	2	5	1	3	14
Poison	45	7	34	7	..	93
Suffocation	31	6	13	7	..	57
Circumcision	7	..	3	..	..	10
Criminal abortion	19	..	6	3	..	28
Surgical operation	22	..	..	..	..	22
Caisson disease	..	..	..	1	..	1
Total	2,042	313	1,045	286	95	3,781

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Deaths by Suicide in

Nativity.	Austria-Hungary.		Bohemia.		England.		France.		Germany.	
	M.	F.	M.	F.	M.	F.	M.	F.	M	F.
Cuts and stabs	..	1	..	..	3	..	..	..	2	1
Drowning	..	..	..	..	..	..	..	..	1	..
Gunshot	6	..	1	..	4	..	3	1	22	1
Hanging	4	..	1	..	1	..	1	..	3	1
Leaps	..	1	..	1	..	..	..	..	3	..
Railroads	..	..	..	..	..	..	..	..	..	..
Aconite	..	..	..	..	..	..	..	..	..	..
Ammonia	1	..	..	..	..	..	..	..	..	..
Arsenic	..	1	..	..	..	..	..	..	..	..
Belladonna	..	..	..	..	..	..	..	..	..	..
Bichloride of mercury	..	..	..	..	..	..	..	..	..	..
Carbolic acid	1	1	..	..	..	..	..	..	3	..
Chloride of potassium	..	..	..	..	..	..	..	..	..	..
Chloroform	..	..	..	..	..	..	..	..	..	..
Cyanide of potassium	..	..	..	..	..	..	..	..	..	..
Hydrochloric acid	..	..	..	..	..	..	..	..	..	..
Hydrocyanic acid	..	..	..	..	..	..	..	..	..	..
Illuminating gas	5	..	1	2	1	..	..	1	26	7
Lysol	..	..	..	..	..	..	..	..	..	1
Morphine	..	..	..	..	..	..	..	..	1	..
Opium	..	..	..	..	..	..	..	..	..	..
Oxalic acid	..	..	..	..	..	..	1	..	..	..
Paris green	..	..	..	..	..	..	..	..	..	1
Prussic Acid	1	..	..	..	..	..	..	..	..	..
Strychnine	..	..	..	..	..	..	..	..	1	..
Unknown poison	..	..	..	..	..	..	..	..	1	..
Total by sexes	18	5	3	3	9	..	5	2	63	12
Total of both sexes	23		6		9		7		75	

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Borough of Manhattan.

Ireland.		Italy.		Russia.		Other foreign countries.		United States.		Unknown.		Total by Sexes.		Total both Sexes.
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
2	..	1	..	..	..	1	..	8	1	2	..	19	3	22
..	1	..	..	..	1	..	..	1	..	1	..	3	2	5
1	..	7	..	4	..	8	1	35	5	8	..	99	8	107
..	..	2	..	5	2	4	..	3	..	2	..	26	4	30
2	..	2	..	2	2	1	..	8	6	..	1	18	11	29
..	..	..	..	..	..	..	..	1	..	..	..	1	..	1
..	..	..	..	..	..	..	..	1	..	..	..	1	..	1
..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
1	..	..	..	..	..	..	..	..	..	..	..	1	1	2
1	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	1	..	..	..	..	..	1	1	..	..	2	1	3
..	5	..	..	4	..	2	1	9	6	2	..	21	13	34
1	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	..	..	..	..	..	1	..	..	..	..	..	1	1
..	..	..	..	..	..	..	..	3	..	..	..	3	..	3
..	..	..	..	..	..	..	..	1	1	..	..	1	1	2
..	..	..	..	..	..	..	..	2	..	..	..	2	..	2
8	..	2	..	7	1	12	2	23	16	1	5	86	34	120
..	..	..	..	..	..	..	..	..	1	..	..	..	2	2
..	..	..	..	..	..	1	1	2	..	..	..	4	1	5
..	..	..	..	..	1	1	1	1	..	..	..	2	2	4
1	1	..	..	..	..	..	..	..	1	..	..	2	2	4
..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	..	..	..	..	..	..	..	1	..	..	1	1	2
17	7	15	..	22	7	30	7	99	39	16	6	297	88	..
24		15		29		37		138		22		..	..	385

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** Deaths by Suicide in The*

Nativity.	Austria-Hungary.		Bohemia.		England.		France.		Germany.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Cuts and stabs	1	1	1	..	5	..	..	..	11	1
Drowning	..	..	..	..	1	..	..	..	2	..
Gunshot	7	..	1	..	7	..	4	1	48	2
Hanging	5	1	1	..	1	..	1	..	20	5
Leaps	..	1	..	1	..	..	..	1	6	..
Railroads	..	..	..	..	..	..	..	..	1	..
Aconite	..	..	..	..	..	..	..	..	..	..
Ammonia	1	..	..	..	..	..	..	..	..	..
Arsenic	..	1	..	..	..	..	..	..	2	1
Belladonna	..	..	..	..	..	..	..	..	..	..
Bichloride of mercury	..	..	..	..	..	..	..	..	..	1
Carbolic acid	2	1	..	..	..	..	..	..	11	3
Chloride of potassium	..	..	..	..	..	..	..	..	..	..
Chloroform	..	..	..	..	..	..	..	..	..	..
Cyanide of ammonia	..	..	..	..	..	..	..	..	..	..
Cyanide of potassium	..	..	..	..	1	..	..	..	..	..
Hydrochloric acid	..	..	..	..	..	..	..	..	..	..
Hydrocyanic acid	..	..	..	..	..	..	..	..	..	..
Illuminating gas	7	1	1	2	4	..	1	1	48	18
Lysol	..	..	..	..	..	..	..	..	..	1
Morphine	..	..	..	..	..	..	..	..	1	..
Muriatic acid	..	..	..	..	..	..	..	..	..	..
Opium	..	..	..	..	..	..	..	..	1	..
Oxalic acid	..	..	..	..	..	..	1	..	..	..
Paris green	1	..	..	..	..	..	..	..	..	1
Prussic acid	..	..	..	..	..	..	..	..	..	..
Strychnine	..	..	..	..	..	..	..	..	1	..
Unknown poison	..	..	..	..	..	..	..	..	1	..
Total by sexes	24	6	4	3	19	..	7	3	153	33
Total of both sexes	30		7		19		10		186	

* The 707 suicides occurred in the boroughs as follows: Manhattan, 385

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City of New York.

Ireland.		Italy.		Russia.		Other foreign countries.		United States.		Unknown.		Total. by Sexes.		Total both Sexes.
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
3	1	2	..	..	..	1	..	13	3	2	..	39	6	45
..	1	1	..	..	1	1	1	3	2	1	1	9	6	15
5	..	18	..	7	..	10	2	75	9	16	..	198	14	212
..	..	3	..	6	2	8	..	10	2	4	..	59	10	69
2	1	2	..	2	3	2	2	9	7	..	1	23	17	40
..	..	..	..	..	..	..	..	1	..	..	..	2	..	2
..	..	..	..	..	..	..	..	1	..	..	..	1	..	1
..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
1	..	..	..	..	1	..	..	2	..	..	..	5	3	8
1	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	1	..	..	..	..	..	1	1	..	..	2	2	4
4	6	..	1	7	..	2	2	20	10	4	..	50	23	73
1	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	..	..	..	..	..	1	..	..	..	..	..	1	1
..	..	..	..	..	..	..	..	1	..	..	..	1	..	1
..	..	..	..	..	..	..	..	5	..	..	..	6	..	6
..	..	..	..	..	..	..	..	1	1	..	..	1	1	2
..	..	..	..	..	..	..	..	2	..	..	..	2	..	2
10	1	3	..	10	1	17	3	34	25	1	5	136	57	193
..	..	..	..	..	..	..	..	..	1	..	..	..	2	2
..	..	..	..	..	..	1	1	2	..	1	..	5	1	6
..	..	..	..	..	..	..	..	1	..	..	..	1	..	1
..	..	..	..	..	1	1	1	3	..	..	..	5	2	7
1	1	..	..	..	..	..	..	1	2	..	..	3	3	6
..	..	..	..	..	..	..	..	..	1	..	..	1	2	3
..	..	..	..	..	..	..	..	1	..	..	..	1	..	1
..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	..	..	..	..	1	..	..	1	..	..	2	1	3
28	11	30	1	32	9	44	13	186	65	29	7	556	151	..
39		31		41		57		251		36		..	..	707

The Bronx, 57; Brooklyn, 204; Queens, 48; Richmond, 13.

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Deaths in Institutions, Year of 1906.

Borough of Manhattan.

Babies' Hospital	315
Bellevue Hospital	2,711
Beth Israel Hospital	211
City Hospital	328
Columbus Hospital	66
Flower Hospital	176
Foundling Hospital	1,142
French Hospital	94
General Memorial Hospital	37
German Hospital	263
Gouverneur Hospital	254
Hahnemann Hospital	54
Harlem Hospital	377
Home for the Aged (Little Sisters of the Poor)	45
Home for Aged Hebrews	31
House of Relief	320
Immigration Hospital (Ellis Island)	59
Italian Hospital	29
Lying-in Hospital	259
Manhattan Eye and Ear Hospital	28
Manhattan State Hospital	399
Maternity Hospital	136
Metropolitan Hospital	1,120
Montefiore Home	96
Mount Sinai Hospital	697
New York City Home for Aged and Infirm	641
New York Hospital	431
New York Eye and Ear Hospital	26
New York City Schools and Hospital	80
New York Infant Asylum	171
New York Infirmary for Women and Children	17
Nursery and Child's Hospital	104
Polyclinic Hospital	52
Post Graduate Hospital	397
Presbyterian Hospital	528
Reception Hospital	151
Roosevelt Hospital	505
St. Francis' Hospital	121
St. Luke's Hospital	348

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St. Mark's Hospital	70
St. Mary's Free Hospital for Children	49
St. Vincent's Hospital	471
Skin and Cancer Hospital	17
Sloane Maternity Hospital	79
Sydenham Hospital	82
Trinity Hospital	12
Willard Parker Hospital	235
Workhouse Hospital	46
J. Hood Wright Hospital	209
Other Institutions	777
Total	14,866

Borough of The Bronx.

Fordham Hospital	167
Home for Incurables	83
Lebanon Hospital	343
Lincoln Hospital and Home	412
Odd Fellows' Home	10
Riverside Hospital	461
St. Francis Hospital	102
St. Joseph's Hospital	591
Seton Hospital	359
Workhouse Hospital	62
Other Institutions	49
Total	2,639

Borough of Brooklyn.

Angel Guardian Home	226
Bradford Street Hospital	15
Bethesda Home	11
Brooklyn Hospital	207
Bushwick Hospital	74
Bethany Deaconess' Home	32
Cumberland Street Hospital	307
Eastern District Hospital	95
German Hospital	241
German Evangelical Home	48

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Home for Aged (Little Sisters of the Poor)	70
Home for Consumptives	136
House of Good Shepherd	11
Infants' Hospital	30
Jewish Hospital	2
Kings County Hospital	901
Kings County Jail	3
Kings County Penitentiary	7
Kings County Emergency Hospital	15
Kingston Avenue Hospital	469
Long Island College Hospital	315
Long Island State Hospital	133
Lutheran Hospital	40
Memorial Hospital	15
Methodist Episcopal Hospital	170
New York City Home for Aged and Infirm	345
Norwegian Hospital	146
Prospect Heights Hospital	27
Swedish Hospital	4
St. Catherine's Hospital	318
St. Christopher's Hospital	81
St. John's Hospital	99
St. Mary's Hospital	287
St. Mary's Maternity Hospital	41
St. Peter's Hospital	511
Samaritan Hospital	9
Williamsburg Hospital	133
Other Institutions	237
Total	5,811

Borough of Queens.

Flushing Hospital	88
Jamaica Hospital	51
River Crest Sanitarium	16
St. John's Hospital	235
St. Joseph's Hospital	43
St. Mary's Hospital	71
Other Institutions	35
Total	539

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Borough of Richmond.

Alms House	18
Mount Loretto	16
Sailors' Snug Harbor	83
Seaside Hospital	104
S. R. Smith Infirmary	141
St. Vincent's Hospital	185
U. S. Marine Hospital	33
Other Institutions	9
Total	589

RECAPITULATION.

Almshouses	1,005
Homes for Aged	600
Hospitals	20,261
Institutions, for Children	1,741
Institutions for Insane	532
Prisons	155
Other Institutions	150
Total	24,444

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Disposition of the Dead and of Still-born Infants in The City of New York.

Cemetery.	Borough of—					City of New York.
	Manhattan.	The Bronx.	Brooklyn.	Queens.	Richmond.	
Acacia				204		204
Almshouse					77	77
A. M. E. Zion					12	12
Aqueduct				3		3
Bayside				492		492
Baron Hirsch					208	208
Calvary				21,763		21,763
Canarsie			62			62
Cedar Grove				772		772
City		5,060				5,060
Colored Burying Grounds, Elmhurst				2		2
County Farms			1,155			1,155
Cypress Hills			597	1,289		1,886
Elmhurst				3		3
Evergreen			843	3,944		4,787
Fairview					94	94
Flatlands			7			7
Flushing				238		238
Fountain					27	27
Friends			21			21
Gravesend			19			19
Greenwood			3,906			3,906
Grace Church				12		12
Hillside					7	7
Holy Cross			6,269			6,269
Holy Trinity			1,710			1,710
Little Neck				3		3
Lake					51	51
Linden Hill				2,401		2,401
Long Island State Hospital			6			6
Lutheran				5,764		5,764
Machpelah	...			197		197
Maimonides			113			113
Maple Grove				197		197
Marble	4					4



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Cemetery.	Borough of—					City of New York.
	Manhattan.	The Bronx.	Brooklyn.	Queens.	Richmond.	
Methodist		1				1
Moravian					306	306
Methodist Episcopal				3		3
Mount Carmel				1		1
Mount Zion				3,387		3,387
Mount Nebo				198		198
Mount Olivet				1,905		1,905
Mount Loretto					11	11
Mount Hope			111			111
Mount St. Mary's				268		268
National			89			89
New Lots			4			4
New Springville					12	12
New Union Fields				229		229
Parsons				1		1
Pelham Bay		21				21
Prospect				48		48
Sailors' Snug Harbor					54	54
Salem Fields			176			176
St. George				3		3
St. John's				1,746		1,746
St. James'				2		2
St. Mary's, Astoria				7		7
St. Mary's, Third Ward					47	47
St. Mary's, Fourth Ward					138	138
St. Michael's				1,698		1,698
St. Monica's				123		123
St. Peter's		43			314	357
St. Raymond's		2,257				2,257
Silver Lake					1,824	1,824
Silver Mount					106	106
Springfield				53		53
Staten Island					30	30
Trinity	38					38
Trinity Churchyard	1					1
Union Fields				533		533
United Jewish Congregational			51			51

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Cemetery.	Borough of—					City of New York.
	Manhattan.	The Bronx.	Brooklyn.	Queens.	Richmond.	
United States Crematory.....				942		942
Vaughn					4	4
Washington.....			2,811			2,811
Woodland.....					163	163
Woodlawn		2,217				2,217
Zion, Douglaston				10		10
Total	43	9,599	17,950	48,441	3,485	79,518

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Deaths of Persons 100 Years of Age and Over.

Date of Death.	Name.	Age			Nativity.	Cause of Death.	Borough of—					City of New York.
		Years.	Months.	Days.			Manhattan.	The Bronx.	Brooklyn.	Queens.	Richmond.	
1906.												
Mar. 7..	Joseph O'Donnell..	102	..	..	Ireland.....	Bright's Disease	1	..	..	..	..	1
Mar. 9..	Elizabeth Jackson.	100	..	..	United States.	Heart Disease..	1	..	..	..	..	1
Mar. 16.	Johannas Smiddy..	102	..	..	Ireland.....	Old age.....	..	..	1	..	..	1
May 31..	Rebecca Mochalei.	101	..	..	Hungary	Old age.....	1	..	..	..	..	1
June 12..	Rose Lafemine....	103	..	..	Italy.....	Endocarditis....	1	..	..	..	..	1
July 4..	Mary Fay.....	105	..	..	England.....	Endocarditis....	1	..	..	..	..	1
July 19..	Ellen Green	101	..	..	United States.	Old age.....	..	..	..	1	..	1
July 28..	Catherine Ross....	100	..	..	Ireland	Senility.....	1	..	..	..	..	1
Aug. 13.	Louis Perlston.....	101	..	..	Russia.....	Senility.....	1	..	..	..	..	1
Sept. 1.	Donato Migliano ..	101	..	..	Italy.....	Disease of Prostate...	1	..	..	..	..	1
Oct. 4..	Mary Murphy.....	100	..	..	Ireland.....	Old age.....	..	..	1	..	..	1
Oct. 16..	Fanny Dluefski....	104	..	..	Russia.....	Gangrene.....	1	..	..	..	..	1
Dec. 9.	Anna Teski.....	101	..	..	Germany.....	Gangrene.....	..	1	..	..	..	1
Dec. 25.	Isakel Freedman...	101	..	..	Russia.....	Pulmonary Oedema ...	1	..	..	..	..	1
Dec. 28.	Laibe Solomson...	100	..	..	Germany.....	Old age.....	1	..	..	..	..	1
						Total.....	11	1	2	1	..	15

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Summaries for Years 1790 to 1906, Inclusive.

The following tables have been compiled from the records of the Health Departments of New York and Brooklyn before consolidation into the present City of New York. The New York tables, therefore, present the statistics of the present boroughs of Manhattan and The Bronx, and the Brooklyn tables those of the present Borough of Brooklyn. It has been found impossible to prepare similar tables for the boroughs of Queens and Richmond:

Former New York (Boroughs of Manhattan and The Bronx).

Estimated Population, Deaths, Births and Marriages, from 1790 to 1906, inclusive.

Year.	Population.	Deaths.	‡Births.	‡Marriages.	Year.	Population.	Deaths.	‡Births.	‡Marriages.
1790	32,962				1814	95,848	1,844		
1791	35,009				1815	99,952	2,511		
1792	37,182				1816	104,232	3,000		
1793	39,491				1817	108,695	2,405		
1794	41,943				1818	113,350	3,106		
1795	44,548				1819	118,204	3,178		
1796	47,314				1820	123,266	3,522		
1797	50,252				1821	130,840	3,422		
1798	53,372				1822	138,879	3,212		
1799	56,686				1823	147,413	3,551		
1800	60,206				1824	156,471	4,224		
1801	63,081				1825	166,086	4,920		
1802	66,094				1826	172,978	4,961		
1803	69,250				1827	180,157	5,139		
1804	72,557	2,084			1828	187,634	4,843		
1805	76,022	2,297			1829	195,421	4,734		
1806	79,653	2,174			1830	203,532	5,522		
1807	83,456	2,236			1831	215,381	6,347		
1808	87,442	1,950			1832	227,920	10,257		
1809	91,618	2,038			1833	241,188	5,689		
1810	95,993	2,073			1834	255,230	8,937		
1811	95,957	2,431			1835	270,089	7,096		
1812	95,920	2,503			1836	278,275	8,068		
1813	95,884	2,335			1837	286,719	8,626		

‡ Incomplete.

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Year.	Population.	Deaths.	‡Births.	‡Marriages.	Year.	Population.	Deaths.	‡Births.	‡Marriages.
1838	295,400	7,911			1873	981,671	29,084	22,683	8,871
1839	304,353	7,910			1874	1,030,607	28,727	25,747	8,397
1840	313,578	8,469			1875	1,044,396	30,709	23,813	7,565
1841	324,342	9,093			1876	1,075,532	29,152	23,744	7,099
1842	335,475	9,154			1877	1,107,597	26,203	25,569	7,129
1843	346,991	8,659			1878	1.140,617	27,008	25,729	7,629
1844	358,902	8,890			1879	1,174,621	28,342	25,573	8,446
1845	371,223	10,122			1880	1,209,196	31,937	27,536	9,002
1846	396,686	11,411			1881	1,244,511	38,624	26,130	10,077
1847*	423,896	14,844	317	185	1882	1,280,857	37,924	27,321	11,085
1848	452,972	14,892	170	199	1883	1,318,264	34,011	28,972	11,556
1848	484,043	22,605			1884	1,356,764	35,034	30,527	11,805
1850	517,246	15,826			1885	1,396,388	35,682	30,030	11,716
1851	538,490	20,738			1886	1,437,170	37,351	31,319	12,216
1852	560,607	20,196			1887	1,479,143	38,933	34,023	13,740
1853†	583,632	21,979	10,157	3,203	1888	1,522,341	40,175	36,136	14,533
1854	607,693	28,473	17,979	5,595	1889	1,566,801	39,679	37,527	14,400
1855	652,559	24,448	14,145	4,199	1890	1,612,559	40,103	39,250	14,992
1856	664,980	21,748	16,199	3,633	1891	1,659,654	43,659	46,904	15,764
1857	699,062	22,811	18,427	3,710	1892	1,708,124	44,329	49,447	16,001
1858	734,892	23,269	13,340	3,942	1893	1,758,010	44,486	51,529	16,144
1859	772,558	22,745	9,035	3,100	1894	1,809,353	41,175	55,636	17.388
1860	812,154	24,760	12,454	4,241	1895	1,873,201	43,420	53,731	20,612
1861	794,905	24,525	10,004	2,993	1896	1,906,139	41,622	55,623	20,513
1862	778,023	23,150	7,612	2,896	1897	1,940,553	38,877	54,089	20,365
1863	761,500	26,617	6,426	3,272	1898	1,976,572	40,438	53.359	20,769
1864	745,327	25,792	5,877	2,675	1899	2,014,330	39,911	52,068	21,740
1865	729,498	25,767	5,332	2,733	1900	2,055,714	43,227	54,616	22,927
1866	767,979	26,815	10,006	5,792	1901	2,118,209	43,304	54,013	23,962
1867	808,489	23,159	12,535	7,144	1902	2,182,836	41,704	57,511	25,993
1868	851,137	24,889	12,590	6,926	1903	2,249,680	41,776	62,131	27,265
1869	896,034	25,167	13,947	8,695	1904	2.318,831	48,743	65,229	27,965
1870	943,300	27,175	14,524	7,985	1905	2,390,382	45,199	66,862	30,228
1871	955,921	26,976	20,821	8,646	1906	2,484,432	46,108	70,311	34.369
1872	968,710	32,647	22,068	9,008					

* First year of registration of births and marriages.
† Births and marriages from July 1 to December 2.
‡ Incomplete.

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The following tables present statistics relating to the present City of now comprised within the limits of that city, so far as the same can be of the smaller civil divisions thereof:

POPULATION OF THE FORMER CITY OF

Boroughs of Manhattan

Ward.	Year of Formation.	From What Taken.	1800.	1810.	1814.	1820.	1825.	1830.	1835.	1840.	1845.
1st.....	1791		4,320	7,941	7,630	12,085	9,929	11,331	10,380	10,629	12,230
2d.....	1791		5,167	8,493	7,439	8,214	9,315	8,203	7,549	6,394	6,962
3d.....	1791		6,449	7,426	7,495	9,201	10,801	9,599	10,844	11,581	11,900
4th.....	1791		6,935	10,226	9,856	10,736	12,240	12,705	15,439	15,770	21,000
5th.....	1791		9,148	14,744	14,523	12,421	15,093	17,722	18,495	19,159	20,362
6th.....	1791		13,076	11,286	11,821	13,309	20,061	13,570	14,827	17,198	19,343
7th.....	1791		15,394	12,120	10,886	13,006	14,192	15,873	21,481	22,982	25,556
8th.....	1803	7th Ward....		9,128	10,702	13,766	24,285	20,729	28,570	29,073	30,900
9th.....	1803	"		4,719	4,343	11,162	10,956	17,333	20,618	24,795	30,907
10th.....	1808	"		10,290	10,824	17,806	23,932	16,438	20,926	29,026	29,993
11th.....	1825	9th and 10th Wards.....					7,344	14,915	26,845	17,053	27,259
12th.....	1825	9th and 10th Wards.....					7,938	11,808	24,437	11,652	13,378
13th.....	1827	10th Ward....						12,598	17,130	18,517	22,411
14th.....	1827	6th and 8th Wards.....						14,288	17,306	20,235	21,103
15th.....	1832	9th Ward.....							13,202	17,755	19,422
16th.....	1836	12th Ward....								22,723	40,350
17th.....	1837	11th Ward....								18,619	27,147
18th.....	1846	16th Ward....									
19th.....	1850	12th Ward....									
20th.....	1851	16th Ward....									
21st	1853	18th Ward....					...				
22d	1853	19th Ward....									
23d.....	1874	Westchester County.							...		
24th.....	1874 and 1895	Westchester County.									
Total....			60,489	96,373	95,519	123,706	166,086	197,112	268,089	312,710	371,223

NOTE.—In this and the four following tables, the columns headed by decade years give the results of State census.

The figures, for years prior to 1870, for this and the following tables, are taken from the official report true totals, as given in the reports of the United States census for those years. The actual figures of the 515,557; and for 1860, 813,668.

The city was originally divided into seven wards in 1686, by Governor Dongan's charter. They were the rest of Manhattan Island forming the Out Ward.

* The New York State census of New York City (Boroughs of Manhattan and The Bronx) was not

N. B.—The Twenty-third and Twenty-fourth Wards constitute the present Borough of the Bronx. correct figures cannot be given previous to the census of 1875, the population as given in the table for became a part of New York, was separated from Westchester County as a whole, and formed into the towns

A On June 6, 1895, a portion of Westchester County, comprising a part of the present Twenty-fourth e United States census, was 25,085.

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New York, showing the growth of population since 1800 in the territory ascertained, together with the development and successive segregation

NEW YORK, BY CENSUS, SINCE 1800.

and the Bronx.

1850.	1855.	1860.	1865.	1870.	1875.	1880.	United States Census, 1890.	Police Census 1890.	*New York State Census, 1892.	Police Census, 1895.	United States Census, 1920.	*New York State Census, 1905.
19,754	13,846	18,148	9,852	14,463	14,298	17,939	11,122	12,075		12,508	9,516	
6,665	3,249	2,506	1,194	1,312	1,012	1,608	929	1,510		1,638	1,488	
10,355	7,909	3,757	3,367	3,715	2,874	3,582	3,765	3,418		4,014	1,797	
23,250	22,895	21,994	17,352	23,748	20,828	20,996	17,809	19,337		18,405	19,554	
22,686	21,617	22,337	18,205	17,150	15,951	15,845	12,385	12,949		10,603	8,298	
24,698	25,562	26,696	19,754	21,123	19,861	20,196	23,119	23,058		22,897	20,004	
32,690	34,422	39,982	36,962	44,818	45,636	50,066	57,366	62,139		74,227	89,237	
34,612	34,052	39,406	30,098	34,913	32,465	35,879	31,220	41,890		31,374	29,059	
40,657	39,982	44,385	38,504	47,609	49,403	54,596	54,425	60,243		60,987	59,650	
23,316	26,378	29,004	31,537	41,431	41,757	47,554	57,596	64,076		70,168	71,879	
43,758	52,979	59,571	58,953	64,230	63,855	68,778	75,426	83,337		86,722	99,144	
10,451	17,656	30,651	28,259	47,497	60,510	81,800	245,046	275,587		364,412	476,602	
28,246	26,597	32,917	26,388	33,364	34,013	37,797	45,884	51,649		58,802	64,117	
25,196	24,754	28,080	23,382	26,436	26,453	30,171	28,094	30,752		31,904	34,035	
22,564	24,046	27,587	25,572	27,587	25,529	31,882	25,399	32,707		26,216	24,066	
52,882	39,823	45,176	41,972	48,359	48,235	52,188	49,134	61,419		57,430	52,808	
43,766	59,548	72,953	79,563	95,365	101,075	104,837	103,158	107,737		114,727	130,796	
31,546	39,415	57,462	47,613	59,593	61,195	66,611	63,270	70,299		67,469	61,325	
18,465	17,866	32,795	39,945	86,090	118,727	158,191	234,846	257,766		267,076	257,448	
....	47,055	67,519	61,884	75,407	79,764	86,015	84,327	93,844		94,969	89,798	
....	27,914	49,017	38,669	56,703	58,831	66,536	63,019	78,689		72,144	60,211	
....	22,605	61,725	47,361	71,349	83,420	111,606	153,877	184,979		194,893	189,261	
4,436	12,436	16,343	19,024	28,981	{24,320 11,874	28,338 13,288	53,948 20,137	60,445 20,810		81,567 26,508	132,413 A 68,094	
519,983	642,246	830,012	745,410	971,273	1,041,886	1,206,299	1,515,301	1,710,715	1,801,739	1,851,060	2,050,600	2,384,326

the United States census, and the others, excepting when otherwise stated, the results of the New York

of the New York State census of 1865. The totals at the foot of the columns for 1840, 1850, and 1860 are the columns, however, when summed up, do not give the same totals, that for 1840 being 313,161; for 1850,

not numbered at that time, but were called the West, South, Dock, East, North and Montgomerie Wards,

taken by wards, but by assembly districts, so that only the total is available for this table.
They were formed from a part of Westchester County, and owing to the division of townships and villages, previous years, being the minimum, but not the true total. The portion represented above, which afterward of West Farms, (1846) and Morrisania, formed from West Farms (1855).
Ward, was annexed to The City of New York; the population of this annexed district June 1, 1900, according

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Population of Former City of New York, From 1628 to 1900, With Dates and Numbers of Censuses.

Year.	Population.	Authority.
1628.....	270	City Inspector's Report, 1861.
1656.....	1,000	City Inspector's Report, 1861.
1664.....	1,500	City Inspector's Report, 1861.
1697.....	4,302	Census (Noah Webster in "American Magazine," New York March, 1788).
1703.....	4,375	City Inspector's Report, 1861.
1712.....	5,841	City Inspector's Report, 1861.
1723.....	7,248	City Inspector's Report, 1861.
1731.....	8,622	City Inspector's Report, 1861.
1737.....	10,664	City Inspector's Report, 1861.
1746.....	11,717	City Inspector's Report, 1861.
1749.....	13,294	City Inspector's Report, 1861.
1756.....	13,046	Noah Webster, loc. cit.
1771.....	21,862	Noah Webster, loc. cit.
1786.....	23,614	Noah Webster, loc. cit.
1790.....	33,131	United States Census, August 1.
1800.....	60,515	United States Census, August 1.
1810.....	96,373	United States Census, August 1.
1814.....	95,519	New York State Census, June 1.
1820.....	123,706	United States Census, August 1.
1825.....	166,086	United States Census, July 1. (?)
1830.....	202,589	United States Census, June 1.
1835.....	270,089	New York State Census, July 1. (?)
1840.....	312,710	United States Census, June 1.
1845.....	371,223	New York State Census, July 1.
1850.....	515,547	United States Census, June 1.
1855.....	629,904	New York State Census, June 1.
1860.....	813,669	United States Census, June 1.
1865.....	726,386	New York State Census, June 1.
1870.....	942,292	United States Census, June 1.
1875.....	*1,041,886	New York State Census, June 1.
1880.....	1,206,299	United States Census, June 1.
1890.....	1,513,501	United States Census, June 1.
1900.....	A2,050,600	United States Census, June 1.
1905.....	2,384,326	New York State Census, June 1.

NOTE.—A city census, taken by order of the Common Council in 1805 (date uncertain), gave the population as 75,770; a second, taken under similar auspices in 1816 (date uncertain), gave the population variously at 93,634 and 100,619.

*On January 1, 1874, a portion of Westchester County, comprising the present Twenty-third and Twenty-fourth Wards, was annexed to the City of New York; the population of this annexed district June 1, 1875, according to the New York State Census, was 36,194.

A. On June 6, 1895, a portion of Westchester County, comprising a part of the present Twenty-fourth Ward, was annexed to the City of New York, the population of this annexed district June 1, 1900, according to the United States Census, was 25,085.

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Population of Former New York City, by Wards.

	1860.	1865.	1870.	1875.	1880.	1890.		1900.
						*U. S. Census.	†Police Census.	
First	18,148	9,852	14,463	14,298	17,939	11,105	12,075	9,516
Second	2,506	1,194	1,312	1,012	1,608	922	1,510	1,488
Third	3,757	3,367	3,715	2,874	3,582	3,757	3,418	1,797
Fourth	21,994	17,352	23,748	20,828	20,996	17,764	19,337	19,554
Fifth	22,337	18,205	17,150	15,951	15,845	12,351	12,949	8,298
Sixth	26,696	19,754	21,153	19,861	20,196	22,993	23,058	20,004
Seventh	39,982	36,962	44,818	45,636	50,066	57,231	62,139	89,237
Eighth	39,406	30,098	34,913	32,465	35,879	31,169	41,890	29,059
Ninth	44,385	38,504	47,609	49,403	54,596	54,654	60,243	59,650
Tenth	29,004	31,537	41,431	41,757	47,554	57,514	64,076	71,879
Eleventh	59,571	58,953	64,230	63,855	68,778	75,708	83,337	99,144
Twelfth	30,651	28,259	47,497	60,510	81,800	244,793	275,587	476,602
Thirteenth	32,917	26,388	33,364	34,013	37,797	45,882	51,649	64,117
Fourteenth	28,080	23,382	26,436	26,453	30,171	28,038	30,752	34,035
Fifteenth	27,587	25,572	27,587	25,529	31,882	25,185	32,707	24,066
Sixteenth	45,176	41,972	48,359	48,235	52,188	49,250	61,419	52,808
Seventeenth	72,954	79,563	95,365	101,075	104,837	102,668	107,737	130,796
Eighteenth	57,462	47,613	59,593	61,195	66,611	63,100	70,299	61,325
Nineteenth	32,795	39,945	86,090	118,727	158,191	232,978	257,766	257,448
Twentieth	67,519	61,884	75,407	79,764	86,015	84,218	93,844	89,798
Twenty-first	49,017	38,669	56,703	58,831	66,536	62,295	78,689	60,211
Twenty-second	61,725	47,361	71,349	83,420	111,606	156,526	184,979	189,261
Twenty-third				24,320	28,338	53,621	60,445	132,413
‡Twenty-fourth				11,874	13,288	19,779	20,810	A 68,094
Total	813,669	726,386	942,292	1,041,886	1,206,299	1,513,501	1,710,715	2,050,600

* June 1, 1890. † October, 1890. ‡ Twenty-third and Twenty-fourth Wards annexed January 1, 1874.

A. On June 6, 1895, a portion of Westchester County, comprising a part of the present Twenty-fourth Ward, was annexed to The City of New York; the population of this annexed district, June 1, 1900, according to the United States Census, was 25,085.

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FORMER NEW

BOROUGHS OF MANHATTAN

Annual Number of Deaths From

Year.	Cerebro-spinal Meningitis	Diphtheria.	Croup.	† Typhoid Fever.	Typhus Fever.	Measles.	Scarlet Fever.	‡ Small-pox.	Malaria Fever.	Whooping Cough.	Diarrhœal Diseases.
1868	34	277	342	329	137	200	861	26	132	217	4,150
1869	42	328	483	378	125	526	966	203	128	358	3.463
1870	32	308	421	422	96	298	975	293	213	201	4,483
1871	48	238	466	251	65	409	791	805	279	465	3,869
1872	782	446	675	386	86	463	990	929	326	565	5.538
1873	290	1,151	732	313	39	306	1,045	117	263	268	4.475
1874	158	1,665	594	305	14	319	879	484	265	489	3.900
1875	146	2,329	758	376	28	167	514	1,280	246	407	4,047
1876	127	1,750	527	325	20	362	891	315	195	406	4,077
1877	116	951	472	343	17	155	983	14	250	440	3,893
1878	97	1,007	499	321	4	272	1,099	2	285	382	3,213
1879	108	671	522	268	4	244	1,477	25	300	537	3.271
1880	170	1,390	910	372	3	479	618	31	336	277	4.405
1881	461	2,249	1,038	594	160	429	1,964	451	457	286	4,821
1882	238	1,525	729	516	65	913	2,066	259	386	658	4.654
1883	223	1,009	644	625	15	716	744	12	371	327	3.905
1884	210	1,090	748	476	27	762	608		308	490	4.356
1885	202	1,325	855	405	15	736	559	26	297	495	4,146
1886	223	1,727	968	433	14	668	371	31	286	575	4,264
1887	203	2,167	889	421	..	767	589	99	290	188	4,620
1888	173	1,914	639	364	4	591	1,361	81	270	573	4,367
1889	145	1,686	605	397	..	470	1,242	1	228	647	4,500
1890	136	1,262	521	352	..	730	408	2	176	487	4,304
1891	189	1,361	609	384	1	663	1,220	2	185	352	4,629
1892	230	1,436	670	400	45	864	977	81	161	371	6,824
1893	489	1,970	558	381	200	393	551	102	133	542	4,487
1894	213	2,359	511	326	..	584	541	154	126	272	4.266
1895	204	1,634	342	322	..	793	468	10	90	496	4,621
1896	178	1,555	208	297	..	714	402	1	112	435	4.282
1897	232	1,376	214	299	..	391	500	24	118	308	3,956

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YORK CITY.

AND THE BRONX.

Prominent Causes for Thirty-nine Years.

Diarrhœal Diseases of children under five years of age.	Cancer.	Pulmonary Tuberculosis.	Other Tuberculous Diseases.	Heart Diseases.	§ Diseases of Nervous System.	Bronchitis.	Pneumonia.	Bright's Disease.	Puerperal Fever.	Other Puerperal Diseases.	Sunstroke.	Accidents.	Homicide.	Suicide.
3,526	315	3,414	727	615	3,364	803	1,668	534	101	121	196	733	46	98
2,884	304	3,364	846	686	2,950	877	2,100	557	108	116	26	797	37	102
3,917	355	4,030	926	699	3,037	855	1,836	787	150	128	238	834	45	101
3,353	335	4,186	886	813	2,656	964	1,834	947	193	188	21	*1,071	65	114
4,915	392	4,274	999	894	3,159	1,040	2,150	949	284	192	320	1,108	69	144
3,903	425	4,134	905	860	2,777	1,068	2,328	876	258	169	34	968	73	118
3,468	416	4,034	817	883	2,432	1,065	2,398	828	232	161	19	1,008	59	180
3,575	424	4,172	773	985	2,417	1,111	2,802	909	222	148	19	967	62	155
3,632	459	4,194	776	992	2,457	1,214	2,542	958	190	152	206	902	55	150
3,397	495	4,044	647	880	2,357	1,033	2,148	923	185	113	21	820	57	148
2,785	570	4,466	721	1,068	2,358	1,184	2,288	919	172	128	52	809	58	142
3,826	572	4,343	728	1,164	2,445	1,263	2,554	1,027	216	143	41	837	48	117
3,815	659	4,706	736	1,153	2,672	1,375	2,822	1,029	224	183	116	1,007	58	152
4,159	706	5,312	811	1,289	3,140	1,511	3,261	1,187	244	182	134	1,059	65	166
3,959	732	5,247	805	1,477	2,865	1,583	3,472	1,241	236	171	103	1,099	76	199
3,297	678	5,290	653	1,693	2,727	1,435	3,409	1,195	254	162	83	1,100	62	161
3,722	731	5,235	804	1,662	2,911	1,485	3,159	1,163	241	197	107	1,055	55	229
3,482	754	5,196	749	1,800	3,095	1,605	3,650	1,188	213	181	146	1,078	59	207
3,595	779	5,477	872	1,894	3,081	1,701	3,656	1,210	186	185	42	1,176	63	223
3,947	832	5,260	747	2,018	3,373	1,838	3,707	1,128	198	157	216	1,288	70	235
3,648	870	5,260	813	1,880	3,529	1,892	4,288	1,147	246	196	96	1,085	57	247
3,889	848	5,479	862	1,970	3,491	1,814	4,075	1,763	226	167	32	1,148	72	244
3,779	954	5,492	917	1,978	3,210	1,987	4,989	2,024	208	173	62	1,449	61	239
4,044	902	5,160	949	2,285	3,341	1,836	5,818	2,116	249	171	95	1,597	56	300
4,177	996	5,033	1,028	2,330	3,655	1,754	5,841	1,991	277	140	320	1,900	38	241
3,890	993	5,124	1,039	2,379	3,750	1,577	6,487	2,071	237	147	43	1,607	47	314
3,757	1,022	4,658	1,062	2,170	3,466	1,329	4,725	1,879	193	165	115	1,728	61	331
4,061	1,030	5,205	1,078	2,297	3,429	1,636	5,751	2,019	218	191	85	2,055	76	376
3,776	1,141	4,994	932	2,396	3,358	1,292	5,383	2,195	198	218	765	2,641	71	384
3,559	1,217	4,843	948	2,346	3,345	1,089	4,621	2,059	169	234	39	1,782	65	436

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Year.	Cerebro-spinal Meningitis.	Diphtheria.	Croup.	† Typhoid fever.	Typhus Fever.	Measles.	Scarlet Fever.	‡ Small-pox.	Malarial Fever.	Whooping Cough.	ʙ Diarrhœal Diseases.
1898	258	788	135	376	1	446	523	1	126	442	4,321
1899	287	940	145	294	..	379	332	18	80	350	3,292
1900	201	1,121	155	372	..	470	315	12	104	318	3,809
1901	201	A 1,227	..	412	..	272	635	399	93	159	3,695
1902	190	1,142	..	399	..	462	635	218	67	385	3,356
1903	208	1,232	..	350	..	321	465	3	39	187	3,086
1904	1,083	1,272	..	309	..	556	534	1	38	120	3,759
1905	1,110	860	..	310	..	314	271	1	19	239	3,822
1906	600	983	..	369	..	662	212	..	27	202	3,652

* Exclusive of 53 killed in riot July 12. † Including typho-malarial fever.
‡ The vaccinating corps was organized as a separate branch of the Department on September
§ Number given in annual report for 1873, 2,702; discrepancy caused by transfer of deaths of
A Including croup since 1901.
B The figures on diarrhœal diseases have been revised so as to agree with the Bertillon

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‖ Diarrhœal Diseases of Children under five years of age.	Cancer.	Pulmonary Tuberculosis.	Other Tuberculous Diseases.	Heart Diseases.	§ Diseases of Nervous System.	Bronchitis.	Pneumonia.	Bright's Disease.	Puerperal Fever.	Other Puerperal Diseases.	Sunstroke.	Accidents.	Homicide.	Suicide
3,847	1,260	4,957	944	2,379	3,155	1,127	5,301	2,426	157	219	388	1,860	93	463
2,935	1,321	5,238	971	2,203	3,190	1,132	5,418	2,739	138	247	95	1,808	97	433
3,340	1,473	5,278	910	2,276	3,091	1,093	6,747	2,924	169	259	205	2,198	92	500
3,296	1,575	5,233	816	3,088	3,404	934	5,792	2,951	155	246	898	2,579	82	470
2,985	1,536	4,893	851	3,133	3,399	1,020	5,841	2,814	162	247	25	1,927	89	477
2,761	1,683	5,263	839	3,064	3,241	859	6,308	2,951	141	234	76	2,032	78	521
3,390	1,740	5,511	783	3,188	4,442	1,044	8,029	3,146	169	278	22	3,033	119	567
3,349	1,834	5,678	670	3,072	4,591	864	6,139	3,175	189	396	134	2,283	103	422
3,354	1,856	5,900	796	3,506	3,612	720	6,682	3,231	157	301	75	2,280	158	442

29, 1874, in accordance with chapter 635, Laws of 1874, passed June 15.
simple cerebro-spinal meningitis from zymotic to nervous causes.

classification of diseases, with the addition of dysentery.

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Deaths from all Causes in Former New

Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1866	14,287	12,528	4,260	3,576	1,434	1,254	1,154	993
1867	12,281	10,878	4,099	3,298	1,446	1,382	1,056	971
1868	13,300	11,589	4,394	3,763	1,480	1,408	1,035	987
1869	13,369	11,798	4,002	3,403	1,504	1,402	1,345	1,203
1870	14,475	12,700	4,534	3,849	1,429	1,274	1,156	1,091
1871	14,452	12,574	4,287	3 707	1,459	1,248	1,148	1,222
1872	17,327	15,320	5,260	4,531	1,754	1,588	1,620	1,435
1873	15,313	13,771	4,649	4,029	1,444	1,289	1,439	1,332
1874	15,060	13,667	4,445	3,834	1,479	1,339	1,508	1,351
1875	15,979	14,730	4,569	3,971	1,628	1,508	1,596	1,576
1876	15,432	13,720	4,506	3,664	1,659	1,416	1,544	1,421
1877	13,624	12,579	3,986	3,433	1,301	1,194	1,232	1,161
1878	13,997	13,011	3,828	3,272	1,387	1,229	1,378	1,316
1879	14,807	13,535	4,145	3,425	1,319	1,199	1,415	1,274
1880	16,831	15,106	4,810	3,915	1,581	1,420	1,521	1,463
1881	20,671	17,953	5,358	4,333	1,915	1,769	2,235	2,127
1882	20,096	17,828	5,378	4,489	1,864	1,722	2,075	1,992
1883	18,174	15,837	4,700	3,968	1,459	1,201	1,305	1,223
1884	18,401	16,633	5,206	4,430	1,578	1,411	1,366	1,281
1885	18,916	16,766	5,035	4,268	1,584	1,420	1,540	1,420
1886	20,269	17,082	5,529	4,301	1,712	1,476	1,607	1,496
1887	20,997	17,936	5,578	4,505	1,686	1,552	1,767	1,658
1888	21,558	18,617	5,648	4,763	1,750	1,573	1,879	1,745
1889	21,289	18,390	5,730	4,797	1,716	1,594	1,719	1,596
1890	21,435	18,668	5,598	4,690	1,647	1,605	1,414	1,351
1891	23,104	20,555	6,119	5,122	1,840	1,683	1,773	1,687
1892	24,044	20,285	6,222	5,174	1,983	1,740	1,894	1,671
1893	24,146	20,340	6,024	5,082	1,746	1,575	1,768	1,670
1894	22,216	18,959	5,911	4,913	1,777	1,517	1,754	1,686
1895	23,224	20,196	6,186	5,081	1,975	1,845	1,621	1,513
1896	22,592	19,030	5,926	4,751	1,695	1,516	1,446	1,473
1897	20,749	18,128	5,406	4,608	1,524	1,360	1,312	1,185

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York City, by Age and Sex, Since 1866.

Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
6,848	5,823	766	679	936	1,044	2,916	2,544	1,947	1,418	874	1,020
6,601	5,651	604	491	722	771	2,169	2,046	1,530	1,108	655	811
6,909	6,158	651	538	767	799	2,532	2,045	1,665	1,140	776	909
6,851	6,008	728	567	704	798	2,496	2,131	1,822	1,291	768	1,003
7,119	6,214	661	525	839	888	2,871	2,506	2,067	1,493	918	1,074
6,894	6,077	682	588	924	893	2,990	2,516	2,048	1,458	914	992
6,834	7,554	980	916	1,109	1,058	3,384	2,893	2,260	1,688	960	1,211
7,532	6,650	922	819	869	970	2,928	2,565	2,093	1,580	969	1,187
7,432	6,524	880	903	822	845	2,781	2,512	2,172	1,603	973	1,280
7,793	7,055	916	987	916	1,010	3,025	2,624	2,280	1,660	1,049	1,394
7,709	6,501	830	762	825	927	2,869	2,433	2,133	1,712	1,066	1,385
6,519	5,788	721	619	763	893	2,496	2,273	2,082	1,656	1,043	1,350
6,593	5,817	716	708	743	890	2,600	2,402	2,274	1,800	1,071	1,394
6,879	5,898	789	701	794	944	2,807	2,591	2,339	1,891	1,199	1,510
7,912	6,738	815	788	941	969	3,213	2,880	2,618	2,122	1,332	1,609
9,508	8,229	1,327	1,310	1,212	1,171	3,981	3,205	3,114	2,290	1,529	1,748
9,317	8,203	1,089	1,051	1,145	1,169	3,978	3,072	3,066	2,477	1,501	1,856
7,464	6,392	871	833	1,186	1,218	3,919	3,168	3,202	2,405	1,532	1,821
8,150	7,122	786	782	1,137	1,126	3,652	3,218	3,154	2,526	1,522	1,859
8,159	7,108	832	796	1,078	1,167	3,932	3,243	3,320	2,649	1,595	1,803
8,848	7,273	853	791	1,172	1,112	4,269	3,195	3,520	2,660	1,607	2,051
9,031	7,735	942	922	1,277	1,116	4,462	3,343	3,542	2,828	1,743	1,992
9,277	8,081	1,003	973	1,284	1,256	4,590	3,394	3,644	2,857	1,760	2,056
9,165	7,987	935	882	1,200	1,273	4,555	3,371	3,692	2,879	1,742	1,998
8,659	7,646	745	722	1,270	1,232	4,947	3,699	3,935	3,197	1,879	2,172
9,732	8,492	957	972	1,352	1,316	4,977	3,799	4,014	3,427	2,072	2,549
10,099	8,585	1,004	970	1,397	1,346	5,260	3,770	4,290	2,336	1,994	2,278
9,538	8,327	997	1,019	1,532	1,358	5,473	3,860	4,527	3,410	2,079	2,366
9,442	8,116	909	916	1,240	1,212	4,779	3,515	3,946	3,043	1,900	2,157
9,782	8,439	770	798	1,294	1,276	5,106	3,862	4,182	3,313	2,090	2,508
9,067	7,740	766	780	1,222	1,251	5,194	3,597	4,286	3,250	2,037	2,412
8,242	7,153	758	749	1,194	1,165	4,561	3,446	3,950	3,211	2,044	2,404

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Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female
1898	21,799	18,639	5,555	4,608	1,652	1,459	1,157	1,160
1899	21,588	18,323	5,032	4,123	1,488	1,349	1,212	1,187
1900	23,489	19,738	5,549	4,459	1,648	1,416	1,347	1,129
1901	23,570	19,734	5,100	4,248	1,531	1,416	1,303	1,211
1902	22,677	19,027	5,182	4,299	1,584	1,430	1,300	1,222
1903	22,691	19,085	4,833	4,089	1,343	1,247	1,133	1,096
1904	26,618	22,125	5,529	4,598	1,620	1,597	1,454	1,338
1905	24,844	20,355	5,625	4,693	1,467	1,247	1,196	1,059
1906	25,650	20,458	5,690	4,803	1,528	1,373	1,162	978

NOTE.—These ages have been selected as representing approximately the progressive stages of

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Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
8,364	7,227	704	699	1,246	1,165	4,934	3,613	4,258	3,316	2,293	2,619
7,732	6,659	748	722	1,158	1,223	5,231	3,753	4,333	3,368	2,386	2,598
8,544	7,104	819	818	1,251	1,234	5,629	4,017	4,683	3,701	2,563	2,864
7,934	6,875	882	800	1,275	1,185	6,003	4,049	4,952	3,803	2,524	3,022
8,066	6,951	897	835	1,157	1,254	5,472	3,933	4,735	3,442	2,350	2,612
7,309	6,432	872	830	1,264	1,180	5,611	4,050	5,044	3,804	2,591	2,789
8,603	7,533	1,234	1,244	1,521	1,516	6,549	4,421	5,888	4,213	2,823	3,198
8,288	6,999	992	975	1,457	1,306	6,005	4,100	5,343	3,961	2,759	3,014
8,380	7,154	919	767	1,421	1,276	6,213	4,082	5,857	4,013	2,860	3,166

human life, viz.: infancy, childhood, youth, maturity, decline and old age.

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Deaths from Typhoid Fever in Former

Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1866	286	228	2	2	2	3	18	18
1867	172	175	2	2	8	3	16	14
1868	181	148	..	..	3	3	9	11
1869	210	168	1	..	2	..	14	11
1870	225	197	2	3	..	2	9	11
1871	164	87	1	2	2	1	5	1
1872	220	166	1	1	6	2	7	9
1873	181	132	2	1	3	..	12	7
1874	159	146	..	4	1	3	5	1
1875	199	177	1	..	5	1	5	5
1876	180	145	1	2	3	2	13	6
1877	171	172	..	1	4	3	13	7
1878	163	158	1	..	2	2	10	12
1879	125	143	2	..	4	2	9	8
1880	202	170	1	3	2	3	10	12
1881	350	244	..	..	2	1	15	19
1882	267	249	2	..	1	4	9	11
1883	356	269	1	4	2	2	11	15
1884	267	209	1	..	3	1	9	7
1885	229	176	1	1	1	4	7	7
1886	237	196	4	2	2	..	18	8
1887	235	186	1	..	1	2	5	13
1888	235	129	..	1	1	..	9	2
1889	228	169	1	1	1	1	10	4
1890	201	151	1	..	2	2	5	4
1891	221	163	1	1	3	2	9	8
1892	230	170	1	2	4	2	7	2
1893	234	147	1	..	2	2	4	4
1894	194	132	2	1	1	1	2	3
1895	207	115	2	..	3	1	3	3
1896	180	117	2	2	..	..	7	3
1897	188	111	..	2	..	2	5	5

* Including typho-malarial fever.

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*New York City, by Age and Sex.**

Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
22	23	45	43	72	57	103	67	34	32	10	6
26	19	21	26	27	38	48	56	36	28	14	8
12	14	31	27	47	38	57	39	26	21	8	9
17	11	32	25	50	45	62	51	36	28	13	8
11	16	27	28	54	43	85	73	39	21	9	16
8	4	22	19	47	30	60	26	22	6	5	2
14	12	44	30	55	56	76	43	25	18	6	7
17	8	13	20	50	37	67	37	27	25	7	5
6	8	29	24	50	42	46	40	22	25	6	7
11	6	27	38	42	47	75	55	36	20	8	11
17	10	19	21	53	40	64	44	18	21	9	9
17	11	28	27	47	40	50	60	23	24	6	10
13	14	24	28	50	36	49	53	21	22	6	5
15	10	25	23	29	32	35	45	17	25	4	8
13	18	23	32	60	39	73	45	23	28	10	8
17	20	40	32	103	85	125	67	50	28	15	12
12	15	29	33	82	80	102	90	35	22	7	9
14	21	46	42	121	91	127	78	39	25	9	12
13	8	31	23	76	60	110	83	32	29	5	6
9	12	29	18	68	59	87	57	32	27	4	3
24	10	21	29	72	55	85	62	29	32	6	8
7	15	15	26	79	42	101	69	25	25	8	9
10	3	18	21	80	44	97	43	26	14	4	4
12	6	22	19	70	54	95	64	25	18	4	8
8	6	19	21	53	43	87	59	25	19	9	3
13	11	21	31	75	50	82	48	19	18	11	5
12	6	25	19	66	59	106	59	16	23	5	4
7	6	17	13	75	39	103	64	27	22	5	3
5	5	20	19	49	35	95	51	23	21	2	1
8	4	16	14	55	36	103	41	19	19	6	1
9	5	20	22	36	31	98	42	14	16	3	1
5	9	12	19	53	26	91	45	27	9	..	3

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Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1898	253	123	..	..	1	1	4	3
1899	173	121	..	..	1	..	2	2
1900	234	138	2	..	2	2	5	6
1901	246	166	..	1	3	1	8	7
1902	262	137	..	..	4	1	4	3
1903	211	139	1	..	2	..	4	7
1904	195	114	2	2	1	3	7	7
1905	179	131	1	..	2	..	3	4
1906	227	142	1	..	1	3	4	4

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Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
5	4	27	13	89	35	105	52	23	16	4	3
3	2	10	16	39	26	96	65	23	12	2	..
9	8	21	11	53	34	124	65	24	19	3	1
11	9	14	19	58	52	133	61	24	19	6	6
8	4	12	22	61	36	150	58	27	11	4	6
7	7	24	28	60	30	95	61	19	9	6	4
10	12	9	13	52	30	95	43	24	13	5	3
6	4	13	18	54	35	82	60	23	10	1	4
6	7	20	23	65	42	110	53	19	13	7	4

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*Deaths from Typhoid Fever, Former New York City, by Months.**

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1871	18	13	15	15	14	8	16	28	29	33	24	26	239
1872	18	15	26	21	21	21	34	57	51	30	40	30	364
1873	22	15	19	14	26	16	16	43	48	25	29	21	294
1874	24	16	24	16	10	16	13	25	32	33	39	27	275
1875	26	16	19	23	19	18	22	40	68	42	34	20	347
1876	21	19	16	20	18	16	21	35	41	29	28	19	283
1877	14	21	6	8	26	12	16	33	43	32	35	29	275
1878	14	13	6	9	13	7	20	38	35	40	25	25	245
1879	18	10	7	11	9	9	10	30	18	28	9	19	178
1880	10	17	17	16	12	14	23	22	32	30	29	19	241
1881	17	10	27	38	30	18	33	42	72	59	53	47	446
1882	23	18	20	17	18	10	29	44	50	70	38	25	362
1883	19	18	24	22	15	22	31	63	79	90	66	22	471
1884	16	22	16	10	16	18	25	49	62	66	54	35	389
1885	16	11	10	14	16	17	19	32	49	50	34	26	294
1886	12	9	28	13	9	5	22	37	55	59	43	33	325
1887	28	13	21	11	11	16	33	51	53	38	26	22	323
1888	12	13	14	17	17	11	35	42	81	52	37	33	364
1889	27	15	21	18	17	19	31	71	57	57	40	24	397
1890	20	28	14	12	11	11	31	49	64	49	34	29	352
1891	14	11	17	13	20	23	28	57	65	56	51	29	384
1892	15	25	17	19	23	23	52	53	57	55	31	30	400
1893	22	18	29	25	29	23	21	35	42	70	41	26	381
1894	22	11	17	18	11	14	28	42	57	46	32	28	326
1895	17	16	8	14	13	23	27	37	46	48	37	36	322
1896	20	17	11	12	10	13	25	42	38	39	34	36	297
1897	19	15	9	10	14	19	29	40	32	40	28	44	299
1898	8	12	14	8	11	19	20	56	96	59	42	31	376
1899	15	9	14	15	18	11	21	30	40	52	43	26	294
1900	27	19	10	10	18	20	30	37	56	52	42	51	372
1901	41	19	21	22	18	14	31	40	64	64	39	39	412
1902	24	10	17	22	18	20	32	47	42	70	55	42	399
1903	25	16	19	23	23	22	23	39	43	48	35	34	350
1904	16	15	21	12	18	17	21	41	37	39	30	42	309
1905	19	15	17	15	11	16	25	43	49	44	28	28	310
1906	13	21	8	25	17	16	27	39	46	64	55	38	369

* Exclusive of Typho-Malarial Fever, excepting 1888 to 1906, when it was included.

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Deaths from Malarial Fevers former New York City, by Months.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1881.....	26	35	64	56	52	33	50	59	76	66	48	40	605
1882.....	36	28	34	49	39	28	45	63	81	56	44	37	540
1883.....	22	37	54	41	52	31	70	63	44	50	39	22	525
1884.....	27	37	25	18	31	23	37	44	34	57	39	23	395
1885.....	24	39	37	33	36	37	34	41	41	35	24	27	408
1886.....	26	34	37	37	43	25	19	33	29	44	35	32	394
1887.....	25	22	25	23	22	32	32	36	43	33	25	30	348
1888.....	23	23	23	24	22	18	21	21	29	20	26	20	270
1889.....	21	11	11	19	10	15	15	35	26	30	19	16	228
1890.....	17	10	9	8	15	20	12	23	16	15	12	19	176
1891.....	14	8	13	11	11	19	19	23	25	21	13	8	185
1892.....	8	10	15	11	12	16	17	12	21	13	16	10	161
1893.....	7	7	17	11	8	13	12	22	10	7	8	11	133
1894.....	10	3	8	10	15	18	11	15	10	11	9	6	126
1895.....	4	2	7	8	9	9	5	5	11	10	12	8	90
1896.....	7	5	8	9	10	11	9	9	12	22	6	4	112
1897.....	7	6	5	8	12	17	16	8	8	18	5	8	118
1898.....	6	5	5	8	12	7	5	22	27	14	10	5	126
1899.....	1	6	2	7	6	6	14	7	5	10	9	7	80
1900.....	5	5	9	7	12	5	9	12	10	16	11	3	104
1901.....	3	5	2	5	2	6	5	11	23	13	8	10	93
1902.....	4	5	6	4	5	9	10	6	7	9	1	1	67
1903..... ..	1	2	3	1	10	7	3	2	2	3	4	1	39
1904.....	2	1	3	4	7	5	4	3	2	3	2	2	38
1905.....	1	..	1	..	..	3	5	4	2	..	2	1	19
1906.....	1	..	3	2	..	..	6	5	2	5	2	1	27

In this table typho-malarial fever is included, excepting in 1888, to 1906, during which years it is included in tables of typhoid fever.

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Deaths from Measles in Former

Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1866	93	60	15	13	45	21	24	20
1867	272	227	66	42	113	97	70	75
1868	98	102	38	27	31	35	23	30
1869	271	235	74	62	102	95	83	74
1870	165	133	42	22	57	51	54	49
1871	213	196	60	42	78	76	61	67
1872	244	219	68	61	84	72	79	69
1873	141	165	40	50	46	59	43	46
1874	167	152	49	46	60	49	45	40
1875	76	91	12	22	31	35	25	26
1876	194	168	44	40	68	61	59	55
1877	87	68	34	14	27	25	20	20
1878	134	138	39	42	45	38	41	44
1879	130	114	33	16	48	47	36	38
1880	256	223	82	53	86	81	75	74
1881	210	219	52	62	71	73	70	67
1882	443	470	113	131	149	150	145	147
1883	371	345	109	83	131	136	91	90
1884	415	347	108	105	163	120	119	99
1885	375	361	103	107	145	140	99	86
1886	346	322	93	77	156	127	76	95
1887	387	380	119	110	138	140	109	101
1888	325	266	100	87	116	103	87	63
1889	234	236	66	55	95	89	51	76
1890	385	345	121	99	139	141	105	87
1891	316	347	82	94	116	138	95	102
1892	451	413	151	111	166	150	113	122
1893	202	191	57	54	85	67	47	59
1894	298	286	96	88	108	94	73	85
1895	374	419	84	108	167	157	105	132
1896	355	359	99	88	119	133	118	116
1897	192	199	53	55	80	79	52	50

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New York City, by Age and Sex.

Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
84	54	9	5	..	..	..	1	..	..	..	..
249	214	22	12	1	..	..	1	..	..	..	..
98	92	6	8	..	2	..	..	..	..	..	..
259	231	11	20	..	4	1	..	..	..	..	..
153	122	11	10	..	..	1	1	..	..	..	..
199	185	14	8	..	3	..	..	..	..	..	..
231	202	12	15	1	1	..	1	..	..	..	..
129	155	10	7	1	1	1	2	..	..	..	..
154	135	11	12	2	1	..	4	..	..	..	..
68	83	8	8	..	..	..	..	..	..	..	..
171	156	22	9	..	1	1	2	..	..	..	..
81	59	6	8	..	..	..	1	..	..	..	..
125	124	8	11	..	1	1	2	..	..	..	..
117	101	12	12	..	1	1	..	..	..	..	..
243	205	13	17	..	..	..	1	..	..	..	..
193	202	16	14	..	2	1	1	..	..	..	..
407	428	33	33	3	3	..	6	..	..	..	..
331	309	33	28	3	3	2	5	..	..	..	..
390	324	23	19	..	2	1	2	1	..	..	..
347	333	26	24	..	3	1	1	1	..	..	..
325	299	16	22	2	1	3	..	..	..	..	..
366	351	16	22	3	4	2	2	..	1	..	..
303	253	19	8	..	2	3	2	..	1	..	..
212	220	18	14	4	..	..	2	..	..	..	..
365	327	16	16	..	..	3	1	1	..	..	1
293	334	18	12	3	..	2	1	..	..	..	..
430	383	18	27	1	1	1	2	1	..	..	..
189	180	9	11	1	..	3	..	..	..	..	..
277	267	20	15	..	3	1	1	..	..	..	..
356	397	15	20	1	1	2	1	..	..	..	.
336	337	16	16	2	3	1	2	..	1	..	..
185	184	6	12	..	2	1	1	..	..	..	..

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Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1898	252	194	76	48	112	88	58	49
1899	202	177	60	35	81	90	45	46
1900	232	232	60	56	95	101	67	55
1901	150	122	37	24	53	48	48	40
1902	240	222	76	50	87	82	61	73
1903	167	154	58	43	69	62	32	41
1904	282	274	79	66	103	121	76	75
1905	170	144	60	37	72	61	31	34
1906	326	336	88	98	133	132	84	91

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Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female	Male.	Female.
246	185	6	5	..	2	..	2	..	..	..	..
188	171	16	5	..	..	..	1	..	..	..	..
222	212	15	15	..	2	..	2	1	1	..	..
138	112	11	7	..	1	..	2	1	..	..	..
224	205	13	11	1	2	1	2	1	2	..	..
159	146	5	8	2	..	1	..	..	..	..	..
258	262	17	9	3	2	4	1	..	..	..	..
163	132	5	10	..	2	1	..	1	..	..	..
305	321	14	13	4	..	3	2	..	..	..	..

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Deaths from Measles, Former New York City, by Months.

Year	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1871.....	108	80	53	44	38	24	28	17	4	..	9	4	409
1872.....	13	48	45	40	65	83	84	41	3	14	17	14	463
1873.....	25	29	20	17	36	40	56	23	5	21	13	21	306
1874.....	28	28	38	41	43	43	45	18	15	8	6	6	319
1875.....	8	3	7	6	16	23	27	18	8	5	13	33	167
1876.....	42	63	67	55	45	34	27	2	5	14	5	3	362
1877.....	4	1	4	8	26	28	24	17	7	12	4	20	155
1878.....	36	38	54	56	33	18	10	5	8	2	5	7	272
1879.....	..	1	4	12	11	26	28	24	20	13	31	74	244
1880.....	100	92	69	73	70	21	21	9	7	1	6	10	479
1881.....	18	21	38	35	63	93	38	29	12	5	15	62	429
1882.....	140	142	122	101	140	79	69	25	8	22	21	44	913
1883.....	60	50	81	108	103	92	77	46	16	21	21	41	716
1884.....	36	29	35	41	93	117	124	57	36	26	70	98	762
1885.....	150	119	119	98	84	73	52	17	5	2	11	6	736
1886.....	5	2	8	10	17	26	58	36	21	48	166	271	668
1887.....	293	181	96	43	33	23	29	6	7	10	22	24	767
1888.....	26	23	18	29	54	86	86	55	36	38	42	98	591
1889.....	117	87	73	60	29	29	18	8	3	5	18	23	470
1890.....	24	32	50	109	129	107	63	45	20	28	48	75	730
1891.....	105	63	67	84	82	79	59	26	15	24	14	45	663
1892	50	47	77	119	168	160	98	32	25	11	25	52	864
1893.....	38	27	25	27	31	49	36	35	17	11	43	54	393
1894.....	105	106	118	85	45	36	26	5	11	13	10	24	584
1895.....	26	33	65	85	115	156	93	51	20	20	46	83	725
1896.....	93	95	118	126	79	69	44	29	12	14	12	23	114
1897.....	25	33	46	25	40	35	31	21	10	24	51	50	391
1898.....	71	58	82	67	47	33	25	12	11	6	12	22	446
1899.....	33	20	23	30	41	47	39	19	14	22	45	46	379
1900.....	79	103	86	64	42	35	27	16	1	6	2	9	470
1901.....	7	7	13	16	21	21	36	11	8	11	26	95	272
1902.....	87	103	73	57	32	40	24	9	2	6	10	19	462
1903.....	28	36	38	36	39	29	37	13	9	8	26	22	321
1904.....	65	56	92	103	85	53	31	16	12	9	17	17	556
1905.....	17	13	36	31	42	65	40	20	10	7	15	18	314
1906.....	51	79	131	127	98	71	44	13	12	7	14	15	662

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Deaths from Scarlet Fever in Former

Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1866	420	386	36	32	76	94	210	178
1867	328	327	25	27	54	48	179	182
1868	417	444	34	29	73	68	200	205
1869	488	478	36	47	105	92	246	223
1870	499	476	39	43	102	88	235	246
1871	397	394	28	22	69	51	205	225
1872	521	469	43	31	91	69	249	242
1873	570	475	37	39	99	72	297	224
1874	476	403	34	29	79	56	234	181
1875	262	252	30	19	52	39	115	117
1876	447	444	32	27	84	76	222	208
1877	489	491	32	34	85	75	236	253
1878	516	583	24	36	106	100	265	290
1879	782	695	52	33	145	134	404	351
1880	323	295	18	15	66	54	180	152
1881	956	1,008	47	50	164	152	467	493
1882	1,072	994	63	53	196	142	529	489
1883	367	377	36	31	68	63	167	174
1884	314	294	30	25	67	55	133	125
1885	295	264	29	21	67	52	129	118
1886	198	173	14	10	46	34	101	96
1887	297	292	13	12	57	58	169	151
1888	689	672	48	39	113	100	347	351
1889	622	620	23	43	131	95	325	298
1890	201	207	9	14	35	40	90	102
1891	616	604	40	26	105	95	319	302
1892	482	495	39	29	63	74	244	255
1893	285	266	24	23	40	40	142	127
1894	263	278	17	14	50	39	127	136
1895	248	220	16	12	34	41	149	105
1896	203	199	8	12	34	25	106	105
1897	265	235	10	15	56	33	127	124



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New York City, by Age and Sex.

Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
322	304	96	77	2	3	..	2	..	..	..	..
258	257	63	68	4	1	3	1	..	..	..	..
307	302	103	119	3	10	4	10	..	3	..	..
387	362	88	106	10	5	3	5	..	..	..	..
376	377	116	88	5	8	2	3	..	..	..	..
302	293	85	91	5	7	5	3	..	..	..	..
383	342	122	109	4	6	12	12	..	..	..	..
433	335	127	124	7	11	3	5	..	..	..	..
347	266	119	117	5	11	4	9	1	..	..	..
197	175	55	64	8	9	2	4	..	..	..	..
338	311	103	122	2	7	4	4	..	..	..	..
353	362	131	123	4	4	..	5	1	..	..	..
395	426	111	143	4	7	6	4	..	2	..	1
601	519	173	161	8	7	..	8	..	..	..	..
264	221	54	70	2	2	3	2	..	..	..	..
678	694	258	278	9	19	10	15	1	1	..	1
788	684	240	262	24	25	18	23	2	..	..	..
271	268	88	84	5	16	2	9	1	..	..	..
230	205	64	72	11	14	9	2	..	1	..	..
225	191	63	64	3	6	4	3	..	..	..	..
161	140	33	30	2	..	1	3	..	..	1	..
239	221	52	66	4	3	2	1	..	1	..	..
508	490	163	173	11	3	7	6	..	..	..	..
479	436	118	147	14	23	10	14	1	..	..	..
143	156	55	45	2	2	1	4	..	..	..	..
464	423	136	165	11	10	5	5	..	..	..	1
346	338	118	131	12	16	6	7	..	2	..	1
206	190	69	68	6	4	4	4	..	..	..	..
194	189	58	72	7	11	3	6	1	..	..	..
199	158	42	57	4	1	3	4	..	..	..	..
148	142	53	52	..	1	2	4	..	..	..	..
193	172	69	59	..	4	1	..	2	..	..	..

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Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1898	248	275	18	18	48	40	119	151
1899	161	171	10	8	27	32	83	81
1900	186	129	22	6	40	22	77	62
1901	322	313	11	18	47	39	151	138
1902	337	298	20	15	47	48	169	130
1903	231	234	9	10	41	35	91	101
1904	259	275	15	12	37	43	123	111
1905	137	134	12	4	19	16	64	58
1906	110	102	4	11	16	9	48	43

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Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
185	209	56	56	2	7	5	3	..	..	..	..
120	121	38	48	3	2	..	..	..	..	..	..
139	90	38	32	2	6	7	1	..	..	..	..
209	195	100	102	7	7	5	8	1	1	..	..
236	193	88	90	8	8	5	6	..	1	..	..
141	146	77	72	7	7	6	9	..	..	..	..
175	166	66	90	11	12	7	6	..	1	..	..
95	78	32	45	8	5	2	5	..	1	..	..
68	63	35	33	4	5	3	1	..	..	..	..

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Deaths from Scarlet Fever, Former New York City, by Months.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1871.....	107	77	83	73	72	52	66	55	20	47	65	71	791
1872.....	95	107	103	126	131	113	75	27	25	47	65	76	990
1873.....	80	86	78	83	110	86	99	55	49	71	102	146	1,045
1874.....	116	100	114	80	78	81	58	51	52	48	45	56	879
1875.....	71	66	49	55	60	46	34	14	15	20	33	51	514
1876.....	65	80	100	134	108	99	56	26	25	33	74	91	891
1877.....	105	93	95	120	92	102	68	54	52	60	60	82	983
1878.....	111	96	110	97	93	87	57	54	35	60	102	197	1,099
1879.....	251	225	254	186	159	119	90	36	50	31	41	35	1,477
1880.....	31	33	25	38	46	30	20	27	24	54	119	168	618
1881.....	173	176	150	185	194	139	152	108	95	125	145	317	1,964
1882.....	403	401	337	291	234	154	69	44	26	26	37	44	2,066
1883.....	80	65	94	95	129	87	37	27	28	32	35	35	744
1884.....	53	60	64	63	68	54	48	21	25	19	50	73	608
1885.....	72	73	77	77	71	53	35	16	4	14	24	43	559
1886.....	89	43	42	49	44	19	25	15	11	18	23	23	371
1887.....	46	41	54	55	56	55	33	21	30	44	55	99	589
1888.....	109	116	123	136	145	138	84	79	66	65	112	188	1,361
1889.....	221	263	249	229	150	69	30	9	12	19	17	29	1,242
1890.....	47	41	58	36	32	37	24	14	15	12	40	52	408
1891.....	83	113	100	169	155	121	118	64	42	50	73	125	1,220
1892.....	135	131	153	132	144	92	33	20	24	27	36	52	977
1893.....	53	69	79	86	85	53	33	19	11	15	14	29	551
1894.....	41	69	70	78	64	67	34	18	15	15	30	40	541
1895.....	63	65	78	59	53	46	15	13	10	10	16	35	468
1896.....	74	53	37	41	46	26	25	9	12	20	28	31	402
1897.....	39	51	50	51	51	58	36	14	22	32	42	54	500
1898.....	83	65	78	56	71	48	35	9	10	16	13	33	523
1899.....	39	41	52	34	39	41	15	7	9	9	15	31	332
1900.....	32	64	46	47	34	15	17	11	9	8	8	24	315
1901.....	55	61	102	106	100	64	43	19	8	12	33	32	635
1902.....	82	82	70	80	99	70	45	20	16	24	19	28	635
1903.....	46	52	67	73	57	40	26	13	10	9	22	47	465
1904.....	79	84	73	81	66	34	20	11	7	17	31	31	534
1905.....	42	42	51	36	35	22	7	2	3	10	10	11	271
1906.....	21	23	32	19	37	14	11	6	7	6	12	24	212

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Deaths from Small-pox in Former

Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1866	29	15	6	1	3	4	1	2
1867	12	7	3	3	..	..	2	
1868	15	11	4	4	..	2	5	1
1869	104	99	19	28	18	13	22	27
1870	167	126	32	37	17	10	26	24
1871	454	351	74	58	34	33	53	43
1872	548	381	85	60	40	38	60	52
1873	67	50	15	16	1	4	2	3
*1874	281	203	57	42	33	31	45	28
1875	709	571	114	110	86	70	110	108
1876	179	136	25	25	13	11	19	26
1877	10	4		1	1	..	1	
1878	1	1		1	..	..		
1879	13	12	2	1	2	3	5	1
1880	19	12	3	2	2	3		
1881	262	189	25	39	28	22	34	34
1882	142	117	21	18	10	14	32	21
1883	8	4		1	1	..		
1884					..	..		
1885	16	10	3	1	..	1	5	4
1886	22	9	4	4	1	..	3	3
1887	62	37	11	7	4	6	7	9
1888	58	23	8	5	4	3	4	4
1889	1				..	..		
1890	2				..	..		
1891	2				..	..		
1892	43	33	10	10	4	3	7	5
1893	60	42	7	10	6	4	7	7
1894	97	57	9	13	9	9	7	16
1895	7	3	1		1	..		
1896	1				..	..		
1897	14	10		3	4	..	3	3

* Vaccinating corps organized September 29, 1874, in accordance with act of Legislature passed June

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New York City, by Age and Sex.

Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
10	7	1	1	4	2	10	4	4	1	..	..
5	3	..	2	3	1	3	1	1	..	..	..
9	7	..	..		1	5	2	1	1	..	..
59	68	9	11	6	13	23	7	6	..	1	..
75	71	16	14	21	12	44	22	11	6	..	1
161	134	58	58	84	63	131	77	19	17	1	2
185	150	54	52	111	76	168	83	24	16	6	4
18	23	7	3	10	9	26	14	5	1	1	..
135	101	25	26	39	28	72	39	8	7	2	2
310	288	71	70	110	70	181	108	34	30	3	5
57	62	12	12	28	28	64	26	17	8	1	..
2	1	..	..		1	5		2	2	1	..
....	1	..	..			1		..	..	..	..
9	5	1	3		1	2	2	1	1	..	..
5	5	1	..	1	3	10	3	2	1	..	..
87	95	26	26	50	30	78	30	18	7	3	1
63	53	12	16	15	21	40	21	11	5	1	1
1	1	1	..	1	3	3		2	..	..	..
....		..	..					..	..	..	..
8	6	4	1		1	3	2	1	..	..	..
8	7	3	2	1		8		2	..	..	..
22	22	4	8	14	4	15	1	6	2	1	..
16	12	3	3	10	1	27	4	2	2	..	1
....		..	..	1				..	..	..	..
....		..	..					2	..	..	..
....		..	..			2		..	..	..	..
21	18	1	2	5	5	14	6	6	2	1	..
20	21	2	2	9	6	25	11	3	2	1	..
25	38	1	5	14	3	41	9	14	1	2	1
2		..	..	1		4	3	..	..	..	..
....		..	..	1				..	..	..	..
7	6	1	1	3	1	2	2	1	..	..	..

15, 1874.

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Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1898	1							
1899	11	7	2	2	1	1		1
1900	6	6	1	1		1		1
1901	244	155	36	37	19	26	42	31
1902	139	79	9	11	5	5	16	14
1903	1	2						
1904	1							
1905		1						
1906								

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Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1								..	..	..	..
3	4			4	2	2	1	2	..	..	..
1	3			1		2	2	1	1	1	..
97	94	16	14	19	6	85	27	23	13	4	1
30	30	7	9	12	9	68	23	21	7	1	1
....	1						1	1	..	..	..
....	...					1		..	..	..	..
....					1			..	..	..	..
....								..	..	..	..

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Deaths from Small-pox, Former New York City, by Months.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1871	24	64	115	110	97	98	83	57	23	23	36	70	805
1872	105	105	116	149	185	124	48	14	7	12	31	33	929
1873	39	22	7	6	17	12	3	1	..	2	6	2	117
*1874	4	7	11	28	34	27	34	34	43	44	78	140	484
1875	150	121	101	104	180	178	157	65	42	50	64	68	1,280
1876	72	72	50	48	26	26	9	3	2	4	..	3	315
1877	1	..	4	4	1	3	1	..	..	..	..	..	14
1878	..	..	1	..	1	..	..	..	..	..	..	..	2
1879	..	..	..	2	1	8	9	4	..	..	1	..	25
1880	..	..	..	..	2	..	2	..	2	2	4	19	31
1881	31	20	44	52	77	67	32	30	11	22	20	45	451
1882	61	65	51	30	26	18	6	1	..	..	1	..	259
1883	..	..	3	5	4	..	..	..	..	..	..	..	12
1884	..	..	..	..	..	..	..	..	..	..	..	..	..
1885	..	..	..	..	..	3	2	..	5	3	8	3	26
1886	5	6	6	6	5	2	..	..	..	..	1	..	31
1887	10	15	10	12	26	5	7	4	5	2	2	1	99
1888	4	3	14	28	18	10	1	1	..	1	1	..	81
1889	..	1	..	..	..	..	..	..	..	..	..	..	1
1890	..	..	2	..	..	..	..	..	..	..	..	..	2
1891	..	..	1	1	..	..	..	..	..	..	..	..	2
1892	1	6	3	9	9	8	7	14	5	10	7	2	81
1893	3	7	11	11	9	7	2	2	19	9	9	13	102
1894	13	27	21	20	20	15	10	4	8	2	10	4	154
1895	3	4	..	..	1	..	..	..	..	2	..	..	10
1896	..	..	..	..	1	..	..	..	..	..	..	..	1
1897	..	..	2	7	6	6	3	..	..	..	..	..	24
*1898	..	..	..	..	..	..	..	..	..	..	1	..	1
1899	1	1	1	1	5	7	1	..	..	1	..	..	18
1900	1	..	..	1	1	1	..	2	..	1	5	..	12
1901	9	32	37	38	62	71	80	33	9	11	7	10	399
1902	35	39	28	38	20	39	15	4	..	..	..	..	218
1903	2	..	..	1	..	..	..	..	..	..	..	..	3
1904	..	..	..	..	..	1	..	..	..	..	..	..	1
1905	..	..	..	..	..	..	..	1	..	..	..	..	1
1906	..	..	..	..	..	..	..	..	..	..	..	..	..

* Vaccinating Corps organized September 27, 1874, under act of Legislature passed June 15, 1874.

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Deaths from Whooping Cough in Former

Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1866	48	66	23	27	16	22	8	15
1867	65	90	39	45	18	26	8	16
1868	89	128	53	64	27	43	8	18
1869	152	206	74	98	46	63	26	39
1870	79	122	44	61	16	38	18	22
1871	196	269	103	136	65	78	26	49
1872	261	304	135	143	66	75	50	72
1873	117	151	56	79	29	41	31	29
1874	214	275	110	151	58	69	45	49
1875	185	222	114	123	50	55	19	40
1876	178	228	97	113	40	59	35	49
1877	189	251	98	112	47	75	39	53
1878	159	223	86	113	37	63	33	42
1879	253	284	128	132	69	87	49	55
1880	134	143	64	60	38	53	30	26
1881	135	151	73	63	33	54	23	30
1882	289	369	155	187	80	90	46	78
1883	169	158	80	88	45	37	35	28
1884	226	264	131	139	56	68	30	50
1885	216	279	118	127	57	81	39	62
1886	261	314	144	159	70	88	40	57
1887	87	101	49	48	23	30	13	18
1888	238	335	119	163	58	89	47	65
1889	285	362	167	173	67	97	49	81
1890	213	274	115	133	49	79	40	56
1891	168	184	95	96	42	44	28	39
1892	156	215	71	104	51	58	32	45
1893	249	293	122	126	83	95	39	59
1894	103	169	57	76	17	45	26	43
1895	216	280	114	127	58	92	38	50
1896	189	246	112	113	42	66	29	57
1897	132	176	73	87	26	52	31	31



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New York City, by Age and Sex.

Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
47	64	1	2	..	..	..	..	..	..	..	..
65	87	..	3	..	..	..	..	..	..	..	..
88	125	1	3	..	..	..	..	..	..	..	..
146	200	6	6	..	..	..	..	..	..	..	..
78	121	1	1	..	..	..	..	..	..	..	..
194	263	2	6	..	..	..	..	..	..	..	..
251	290	10	14	..	..	..	..	..	..	..	..
116	149	1	1	..	..	..	..	..	1	..	..
213	269	1	4	..	..	..	..	..	1	..	1
183	218	2	4	..	..	..	..	..	..	..	..
172	221	5	6	..	1	1	..	..	..	..	..
184	240	5	11	..	..	..	..	..	..	..	..
156	218	3	4	..	..	..	..	..	1	..	..
246	274	7	10	..	..	..	..	..	..	..	..
132	139	2	4	..	..	..	..	..	..	..	..
129	147	6	4	..	..	..	..	..	..	..	..
281	355	8	13	..	1	..	..	..	..	..	..
160	153	8	3	1	1	..	..	..	1	..	..
217	257	9	7	..	..	..	..	..	..	..	..
214	270	2	9	..	..	..	..	..	..	..	..
254	304	7	10	..	..	..	..	..	..	..	..
85	96	2	4	..	..	..	1	..	..	..	..
224	317	14	17	..	..	..	1	..	..	..	..
283	351	2	11	..	..	..	..	..	..	..	..
204	268	7	6	1	..	1	..	..	..	..	..
165	179	3	4	..	..	..	1	..	..	..	..
154	207	2	8	..	..	..	..	..	..	..	..
244	280	5	12	..	..	..	1	..	..	..	..
100	164	3	5	..	..	..	..	..	..	..	..
210	269	5	10	..	1	1	..	..	..	..	..
183	236	6	10	..	..	..	..	..	..	..	..
130	170	2	6	..	..	..	..	..	..	..	..

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Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1898	198	244	105	116	62	70	28	51
1899	158	192	74	99	58	40	25	46
1900	143	175	69	78	38	45	32	41
1901	65	94	31	43	22	29	11	19
1902	175	210	100	111	43	49	28	44
1903	76	111	41	57	22	29	13	22
1904	50	70	28	31	10	22	8	15
1905	105	134	51	70	31	33	20	27
1906	95	107	51	54	25	25	17	23

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Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
195	237	3	..	..	6	..	..	..	..	..	1
157	185	1	6	..	..	..	..	..	1	..	..
139	164	4	9	..	..	..	1	..	1	..	..
64	91	1	2	..	..	..	..	..	..	..	1
171	204	4	6	..	..	..	..	..	..	..	..
76	108	..	3	..	..	..	..	..	..	..	..
46	68	3	2	1	..	..	..	..	..	..	..
102	130	3	3	..	..	..	1	..	..	..	..
93	102	2	5	..	..	..	..	..	..	..	..

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Deaths from Whooping Cough, Former New York City, by Months.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1871	17	14	22	24	27	15	26	53	81	71	49	66	465
1872	84	95	74	81	64	43	33	25	24	21	9	12	565
1873	14	22	35	24	19	14	23	27	26	25	18	21	268
1874	26	38	43	36	28	38	47	59	57	46	35	36	489
1875	49	43	40	36	31	31	42	31	37	25	19	23	407
1876	37	56	46	44	36	18	25	46	33	21	24	20	406
1877	23	30	39	35	24	26	55	68	61	39	16	24	440
1878	25	18	20	18	35	35	44	50	44	43	24	26	382
1879	67	61	91	59	54	40	32	25	37	27	23	21	537
1880	33	24	25	22	20	26	25	23	23	21	18	17	277
1881	15	19	19	16	13	17	22	36	37	30	29	33	286
1882	39	44	76	72	67	56	75	75	56	33	35	30	658
1883	25	32	25	31	27	19	36	43	28	21	16	14	337
1884	22	26	23	32	44	28	64	55	72	51	42	31	490
1885	28	27	35	26	24	22	49	81	56	35	36	76	495
1886	70	69	87	71	44	35	60	48	37	30	13	11	575
1887	32	11	16	10	12	11	25	24	22	8	7	10	188
1888	25	21	29	28	26	40	70	81	82	60	41	70	573
1889	53	53	83	85	67	53	57	61	41	33	28	33	647
1890	46	42	36	30	26	46	61	57	50	37	26	30	487
1891	52	36	43	47	40	25	18	21	21	19	13	17	352
1892	22	16	21	33	26	25	52	58	31	32	29	26	371
1893	39	64	90	65	55	35	45	44	34	19	16	36	542
1894	19	24	29	39	27	16	26	34	14	18	6	20	272
1895	27	30	33	48	30	44	69	64	60	39	22	30	496
1896	33	16	44	50	51	33	51	50	49	26	14	18	435
1897	22	27	38	36	24	22	29	29	25	17	10	19	308
1898	13	23	42	37	38	38	74	66	44	24	22	21	442
1899	25	32	28	20	22	28	42	44	36	24	21	28	350
1900	34	38	34	38	31	21	31	27	21	16	14	13	318
1901	10	12	14	11	12	8	13	23	13	13	14	16	159
1902	29	37	30	47	37	39	44	39	37	15	21	10	385
1903	24	16	12	16	24	15	8	22	20	10	10	10	187
1904	4	10	15	11	9	9	15	13	10	5	8	11	120
1905	10	18	25	38	26	19	29	34	15	13	3	9	239
1906	10	5	10	11	19	14	18	33	22	27	11	22	202

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Deaths from Diphtheria and Croup in

Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1866	416	387	92	71	113	100	168	156
1867	299	284	64	61	79	88	123	105
1868	327	292	73	43	87	73	125	134
1869	413	398	66	68	110	101	192	176
1870	364	365	48	50	106	86	160	170
1871	359	345	47	37	106	93	168	157
1872	557	564	72	57	142	132	263	270
1873	949	934	95	96	187	163	433	421
1874	1,092	1,167	107	90	227	212	510	509
1875	1,516	1,571	145	106	339	330	715	723
1876	1,176	1,101	121	103	321	228	528	530
1877	761	662	80	61	173	168	371	300
1878	767	739	91	53	179	164	353	356
1879	598	595	68	53	153	133	284	290
1880	1,154	1,146	101	77	280	251	576	571
1881	1,673	1,614	165	131	371	344	790	758
1882	1,136	1,118	113	102	291	244	510	533
1883	836	817	97	77	224	174	356	373
1884	939	839	103	69	230	215	424	436
1885	1,078	1,102	104	94	256	246	530	551
1886	1,393	1,302	159	117	329	291	650	614
1887	1,617	1,439	164	99	383	302	772	726
1888	1,321	1,232	120	118	325	284	626	577
1889	1,181	1,110	136	104	287	273	544	499
1890	920	863	99	71	233	188	430	432
1891	1,017	953	111	85	232	202	494	465
1892	1,119	987	92	67	269	222	580	494
1893	1,253	1,305	98	110	300	273	617	612
1894	1,464	1,406	125	109	351	301	731	701
1895	1,017	959	130	84	247	232	477	449
1896	888	875	96	65	241	197	405	430
1897	770	820	82	74	196	213	350	354



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Former New York City, by Age and Sex.

Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
373	327	33	44	4	5	2	5	3	4	1	2
266	254	26	25	..	3	4	2	3	..	..	..
285	250	35	39	1	1	3	1	3	1	..	..
368	345	40	47	1	1	1	4	3	1	..	..
316	306	42	50	3	2	2	5	1	1	..	1
321	287	33	52	2	4	2	1	..	..	1	1
477	459	75	97	3	2	2	3	..	1	..	2
715	680	211	242	9	3	11	3	1	5	2	1
844	811	225	333	8	9	10	8	4	4	1	2
1,199	1,159	297	388	8	10	9	9	3	5	..	..
970	861	187	213	9	11	4	12	5	3	1	1
624	529	123	125	6	5	6	2	1	1	1	..
623	573	135	156	3	3	4	1	2	4	..	2
505	476	86	104	2	7	5	6	..	1	..	1
957	899	189	238	1	3	6	4	1	2	..	..
1,326	1,233	324	347	14	19	7	10	2	4	..	1
914	879	200	219	11	6	7	8	3	4	1	2
677	624	148	165	4	15	7	9	..	4	..	..
757	720	163	166	10	5	5	7	2	1	2	..
890	891	176	200	6	4	5	4	1	2	..	1
1,138	1,022	242	261	4	6	8	10	1	2	..	1
1,319	1,127	272	276	15	19	9	13	2	2	..	2
1,071	979	224	236	12	11	10	4	2	2	2	..
967	876	200	213	5	11	5	8	..	2	4	..
762	691	151	152	1	9	4	9	1	2	1	..
837	752	163	182	6	11	8	4	3	4	..	..
941	783	160	185	9	10	6	5	2	4	1	..
1,015	995	226	283	5	12	2	8	3	5	2	2
1,207	1,111	249	275	4	5	3	11	1	3	..	1
854	765	146	181	5	5	9	6	3	2	..	..
742	692	130	167	2	8	11	7	3	1	..	..
628	641	128	170	8	3	-	3	1	1	..	..

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Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1898	475	448	52	35	150	101	193	203
1899	525	560	62	52	133	149	240	257
1900	669	607	72	64	147	108	297	279
1901	620	607	64	77	172	123	275	283
1902	633	509	71	53	179	130	256	213
1903	628	604	73	56	151	147	275	264
1904	661	611	85	49	183	169	273	264
1905	436	424	69	54	111	106	181	180
1906	559	424	63	55	172	119	223	171

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Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
395	339	65	103	4	1	6	5	4	..	1	..
435	458	83	86	1	4	6	9	..	3	..	..
516	451	131	138	9	7	11	10	2	..	..	1
511	483	95	115	5	6	5	3	3	..	1	..
506	396	113	98	5	9	8	6	1	..	..	..
499	467	109	131	8	4	8	2	3	..	1	..
541	482	103	101	6	8	8	13	2	5	1	2
361	340	68	73	3	5	4	5	..	..	..	1
458	345	85	66	6	7	9	3	1	3	..	..

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Deaths from Diphtheria and Croup, Former New York City, by Months.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1871.....	83	63	74	68	52	35	29	35	41	63	81	80	704
1872.....	105	94	99	67	76	54	39	51	90	124	160	162	1,121
1873.....	151	144	116	115	108	116	124	123	176	223	245	242	1,883
1874.....	201	172	163	177	134	127	132	135	133	253	320	312	2,259
1875.....	321	272	269	251	215	243	201	173	220	283	299	340	3,087
1876.....	350	298	271	210	222	154	96	95	97	161	142	181	2,277
1877.....	108	120	134	116	105	71	84	65	121	161	175	163	1,423
1878.....	197	154	175	144	121	98	65	61	76	119	144	152	1,506
1879.....	143	113	108	67	78	66	44	60	69	122	173	150	1,193
1880.....	142	149	135	149	130	114	133	140	182	307	373	346	2,300
1881.....	328	254	288	273	271	289	257	236	227	283	268	313	3,287
1882.....	323	248	289	234	226	179	126	102	79	137	149	162	2,254
1883.....	180	140	153	149	140	114	96	114	115	136	151	165	1,653
1884.....	128	147	131	147	145	136	100	109	97	209	237	252	1,838
1885.....	178	209	190	181	181	177	151	117	135	155	213	293	2,180
1886.....	252	236	236	196	198	194	193	153	133	254	314	336	2,695
1887.....	321	263	285	271	323	275	181	125	190	228	279	315	3,056
1888.....	310	248	308	213	289	221	183	145	97	132	174	233	2,553
1889.....	269	254	277	289	247	206	137	110	100	123	122	157	2,291
1890.....	156	176	188	186	167	141	125	92	85	112	160	195	1,783
1891.....	156	185	194	166	131	133	134	111	139	176	209	236	1,970
1892	214	182	202	229	203	121	158	106	125	158	191	217	2,106
1893.....	239	198	241	193	206	204	188	146	148	214	279	302	2,558
1894.....	350	260	278	275	336	272	212	159	142	170	204	212	2,870
1895.....	219	175	190	187	204	171	155	137	105	112	145	176	1,976
1896.....	208	187	158	146	192	165	126	104	105	87	127	158	1,763
1897.....	162	133	167	159	195	164	127	94	89	85	107	108	1,590
1898.....	91	108	111	94	88	56	69	39	41	67	71	88	923
1899.....	97	85	98	95	94	99	82	74	53	86	104	118	1,085
1900.....	143	151	131	137	152	106	82	58	42	56	103	115	1,276
1901.....	130	99	136	137	123	117	70	55	59	78	97	126	1,227
1902.....	122	119	100	129	106	99	87	66	45	64	89	116	1,142
1903.....	128	103	120	120	132	108	95	66	67	72	88	133	1,232
1904.....	147	130	126	178	143	110	73	62	65	59	55	124	1,272
1905.....	100	95	79	100	95	65	62	50	43	46	47	78	860
1906.....	107	127	141	116	119	79	65	20	27	41	69	72	983

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Deaths from Pulmonary Tuberculosis in

Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1866	1,791	1,690	41	37	27	30	45	24
1867	1,648	1,608	45	32	31	30	21	39
1868	1,812	1,602	21	11	34	32	24	25
1869	1,748	1,616	2	4	22	21	28	29
1870	2,097	1,933	22	16	32	21	30	31
1871	2,233	1,953	39	35	40	29	32	29
1872	2,176	2,098	26	18	29	29	36	34
1873	2,121	2,013	18	19	15	23	30	32
1874	2,096	1,938	19	23	21	23	25	21
1875	2,200	1,972	22	28	22	21	32	25
1876	2,192	2,002	23	21	26	22	22	32
1877	2,051	1,993	27	20	23	24	22	30
1878	2,256	2,210	44	34	29	26	31	28
1879	2,280	2,063	36	28	31	20	28	18
1880	2,446	2,260	48	30	23	22	29	19
1881	2,913	2,399	39	29	24	28	26	19
1882	2,841	2,406	43	46	20	29	28	40
1883	2,847	2,443	33	32	26	26	26	29
1884	2,835	2,400	57	56	22	18	24	30
1885	2,802	2,394	50	41	29	24	36	20
1886	3,149	2,328	68	40	35	21	28	24
1887	3,000	2,260	55	44	28	41	23	15
1888	3,013	2,247	39	40	16	18	23	18
1889	2,990	2,189	32	19	30	23	17	17
1890	3,160	2,332	30	31	24	23	22	21
1891	2,994	2,166	27	25	15	16	19	16
1892	2,917	2,116	32	29	29	21	24	23
1893	3,075	2,049	31	29	27	17	26	27
1894	2,821	1,837	31	20	18	15	24	20
1895	3,113	2,092	45	26	29	27	22	16
1896	2,991	2,003	24	21	26	15	13	21
1897	2,878	1,965	28	23	24	17	13	23

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Former New York City, by Sex and Age.

Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female
113	91	46	65	318	360	813	771	412	289	89	114
97	101	46	37	269	324	779	775	368	294	89	77
79	68	37	45	301	344	869	766	426	292	100	87
52	54	42	40	270	334	857	796	419	286	108	106
84	68	40	52	314	393	995	927	533	282	131	111
111	93	47	47	343	350	1,130	988	494	359	108	116
91	81	37	56	366	378	1,108	1,074	474	385	100	124
73	74	26	52	348	418	1,039	992	507	357	128	120
65	67	35	61	338	344	1,059	966	497	387	102	113
76	74	49	65	368	439	1,084	932	515	345	108	117
71	75	48	68	380	434	1,099	941	483	375	111	109
72	74	32	42	343	450	974	937	516	376	114	114
104	88	25	45	381	456	1,060	1,062	573	431	113	128
95	66	28	44	389	472	1,127	1,006	538	369	103	106
100	71	43	63	432	486	1,196	1,133	561	378	114	129
89	76	47	66	478	499	1,472	1,259	674	385	153	114
91	117	34	59	471	507	1,431	1,117	667	471	147	135
85	87	33	56	487	528	1,416	1,189	698	440	128	143
103	104	36	55	498	460	1,399	1,221	662	428	137	132
115	85	36	63	441	493	1,444	1,213	655	435	111	105
131	85	38	48	488	505	1,618	1,173	721	389	153	128
106	100	43	52	520	476	1,565	1,133	643	378	123	121
78	76	34	66	480	523	1,631	1,111	682	379	108	92
79	59	44	66	462	511	1,599	1,105	700	332	106	116
76	75	22	70	503	498	1,710	1,199	725	405	124	85
61	57	30	62	489	481	1,635	1,116	640	355	139	95
85	73	34	61	479	466	1,547	1,088	654	336	118	92
84	73	35	67	574	469	1,584	1,012	675	337	123	91
73	55	35	47	456	430	1,520	977	636	258	101	70
96	69	21	53	482	488	1,738	1,077	660	318	116	87
63	57	24	56	469	496	1,684	1,014	636	291	115	89
65	63	28	41	484	443	1,573	1,012	633	318	95	88

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Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1898	2,990	1,967	29	13	18	12	9	19
1899	3,247	1,991	37	28	16	13	24	26
1900	3,223	2,055	28	11	22	10	27	18
1901	3,306	1,927	25	18	19	17	20	18
1902	3,025	1,868	14	12	15	13	18	16
1903	3,245	2,018	17	8	9	14	15	16
1904	3,485	2,026	26	17	16	20	25	18
1905	3,596	2,082	36	12	18	24	25	23
1906	3,814	2,086	28	20	29	17	24	22

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Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
56	44	28	48	449	393	1,643	1,037	692	344	122	101
77	67	33	50	438	440	1,879	1,051	675	288	145	95
77	39	29	48	415	409	1,830	1,172	734	308	138	79
64	53	29	53	442	380	1,934	1,054	723	302	114	85
47	41	25	48	374	441	1,796	1,029	700	248	83	61
41	38	30	59	436	461	1,896	1,128	759	267	83	65
67	55	46	68	466	498	2,054	1,083	772	268	80	54
79	59	30	78	480	477	2,082	1,114	840	303	85	51
81	59	38	67	454	486	2,110	1,113	1,006	318	125	43

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Deaths from Pulmonary Tuberculosis, Former New York City, by Months.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1871.....	403	375	407	371	345	292	347	306	328	345	308	359	4,186
1872.....	343	390	434	380	359	310	351	345	319	346	324	373	4.274
1873.....	388	354	405	385	371	300	295	307	333	318	343	335	4.134
1874.....	313	340	356	375	350	270	284	322	331	364	344	385	4.034
1875.....	386	374	428	428	333	274	325	309	317	333	303	362	4.172
1876.....	358	350	415	344	339	309	373	324	347	358	337	340	4,194
1877.....	356	337	361	357	342	297	338	323	318	341	329	345	4.044
1878.....	391	355	417	353	355	345	354	384	342	393	374	403	4.466
1879.....	417	389	408	393	332	301	346	235	334	367	389	321	4.343
1880.....	402	375	412	394	365	351	385	380	376	408	399	459	4.706
1881.....	494	424	468	484	450	357	407	376	428	465	477	462	5.312
1882.....	456	437	479	491	474	376	443	383	400	464	404	440	5,247
1883.....	463	440	553	493	473	363	450	396	371	406	409	473	5,290
1884.....	412	432	470	447	433	416	406	419	397	467	470	466	5.235
1885.....	475	450	530	475	443	376	401	415	415	439	380	397	5.196
1886.....	490	412	521	511	495	423	439	443	374	432	459	478	5.477
1887.....	522	438	486	504	437	411	390	386	404	425	419	458	5,260
1888.....	412	445	588	520	465	351	413	428	350	461	398	454	5.260
1889.....	445	430	485	426	417	376	422	440	422	412	384	520	5,179
1890.....	797	512	476	418	472	368	428	413	424	400	394	440	5.492
1891.....	468	378	521	508	478	344	387	399	421	414	407	435	5,160
1892.....	468	415	511	516	451	363	407	362	389	360	364	427	5.033
1893.....	412	402	567	554	474	394	393	418	333	386	367	424	5,124
1894.....	421	389	438	358	388	366	395	381	350	358	384	420	4.658
1895.....	489	464	502	458	414	365	389	442	401	450	412	419	5,205
1896.....	460	415	466	468	495	409	364	404	408	383	326	376	4,994
1897.....	422	459	406	400	381	363	392	420	390	444	369	397	4.843
1898.....	387	358	443	416	439	376	423	379	410	413	437	476	4.957
1899.....	493	475	514	465	435	394	416	416	353	410	433	434	5.238
1900.....	440	442	509	527	508	420	423	399	370	427	386	427	5.278
1901.....	529	440	492	477	435	421	410	410	398	428	412	381	5.233
1902.....	412	430	468	436	406	401	404	366	357	434	394	385	4.893
1903.....	502	481	494	482	454	374	391	406	379	409	418	473	5,263
1904.....	453	487	553	550	534	397	439	436	382	416	444	420	5,511
1905.....	485	449	580	531	502	449	427	416	440	444	465	490	5,678
1906.....	502	487	560	510	520	486	460	479	428	486	467	515	5,900

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Deaths from Cancer in Former

Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1866	74	195	..	2	..	..	..	2
1867	89	204	1	..	..	..	..	..
1868	84	231	..	..	..	..	1	1
1869	78	226	..	..	..	..	1	1
1870	110	245	..	..	..	..	..	..
1871	93	242	..	..	..	..	..	1
1872	114	278	..	1	..	1	2	1
1873	138	287	1	..	2	..	..	2
1874	124	292	..	..	1	..	2	..
1875	147	277	..	..	..	..	..	..
1876	152	307	..	..	1	1	..	1
1877	153	342	1	..	..	..	..	..
1878	182	388	2	..	..	..	..	..
1879	193	379	..	..	..	..	2	..
1880	219	440	..	..	1	1	3	1
1881	244	462	..	1	..	1	2	3
1882	265	467	..	1	1	..	2	1
1883	221	457	1	..	..	1	2	1
1884	263	468	1	1	..	..	1	2
1885	228	526	..	1	..	1	2	..
1886	257	522	..	1	..	1	4	2
1887	278	554	..	..	..	..	1	..
1888	284	586	..	..	1	1	1	1
1889	276	572	..	..	1	..	1	..
1890	356	598	1	1	..	..	3	2
1891	318	584	1	..	1	..	1	..
1892	356	640	..	..	..	2	3	2
1893	383	610	1	1	2	1	2	2
1894	362	660	..	1	..	..	4	2
1895	391	639	1	3	2	..	3	4
1896	449	692	..	3	1	1	3	2
1897	474	743	..	1	..	..	5	1

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City of New York, by Age and Sex.

Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
..	4	3	2	1	5	13	58	36	96	21	30
1	..	..	2	2	..	26	73	46	97	14	32
1	1	..	1	3	3	20	68	44	109	16	49
1	1	..	..	1	1	21	76	37	111	18	37
..	..	1	2	1	4	23	72	70	122	15	45
..	1	..	3	..	2	22	79	56	127	15	30
2	3	1	..	3	3	23	98	61	131	24	43
3	2	1	..	5	6	38	93	68	142	23	44
3	..	4	1	5	5	23	92	63	149	26	45
..	..	2	1	3	4	25	84	81	149	36	39
1	2	..	1	5	5	31	86	90	149	25	64
1	..	2	1	5	6	33	102	77	163	35	70
2	..	1	1	3	2	37	102	104	209	35	74
2	..	2	1	4	5	39	106	102	184	44	83
4	2	3	..	4	4	45	119	117	235	46	80
2	5	1	1	7	4	49	127	129	239	56	86
3	2	2	..	10	5	58	141	137	235	55	84
3	2	3	2	4	5	36	144	128	219	47	85
2	3	..	1	7	3	46	124	152	237	56	100
2	2	..	5	4	2	45	146	124	287	53	84
4	4	1	2	4	9	53	136	145	262	50	109
1	..	1	3	10	6	63	148	137	309	66	88
2	2	1	1	1	9	57	160	157	304	66	110
2	..	4	1	4	8	52	164	149	297	65	102
4	3	3	1	6	7	70	171	186	298	87	118
3	..	4	4	2	9	70	148	172	306	67	117
3	4	6	..	8	6	60	177	197	337	82	116
5	4	1	4	3	4	87	152	191	319	96	127
4	3	2	4	5	5	65	158	208	345	78	145
6	7	2	5	4	7	65	164	216	316	98	140
4	6	1	2	7	9	93	168	238	350	106	157
5	2	1	2	8	5	83	160	266	407	111	167

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Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1898	497	763	..	..	..	3	..	4
1899	509	812	1	2	..	..	4	..
1900	558	915	1	2	1	..	1	1
1901	629	946	..	1	..	1	7	2
1902	590	946	1	1	2	1	3	6
1903	655	1,028	3	1	1	1	3	3
1904	710	1,030	1	4	2	2	5	6
1905	768	1,066	1	2	1	..	2	3
1906	766	1,090	2	2	1	..	1	4

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Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
..	7	6	..	6	11	90	198	290	389	105	158
5	2	2	6	9	9	81	200	283	428	129	167
3	3	8	1	17	9	93	222	305	465	132	215
7	4	4	..	11	15	129	241	336	487	142	199
6	8	5	3	9	11	122	225	325	491	123	208
7	5	6	3	9	12	118	237	343	551	172	220
8	12	3	4	11	13	126	249	405	519	157	233
4	5	5	5	18	10	143	266	385	544	213	236
4	6	9	2	16	15	135	245	399	598	203	224

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Deaths from Cancer, Former New York City, by Months.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1871	28	20	35	26	34	20	34	24	26	24	40	24	335
1872	30	34	31	26	44	37	26	34	34	29	32	35	392
1873	40	29	32	35	31	32	50	38	45	30	29	34	425
1874	41	33	37	39	38	32	30	32	36	40	31	27	416
1875	36	30	45	40	35	40	38	33	37	29	33	26	423
1876	32	36	37	27	42	45	36	36	40	34	37	57	459
1877	40	39	42	38	41	33	46	52	40	38	39	47	495
1878	44	47	51	45	48	55	56	41	58	46	40	39	570
1879	44	42	48	50	44	47	57	57	50	41	43	49	572
1880	45	54	67	55	62	55	61	49	52	50	56	53	659
1881	66	58	44	60	73	60	46	59	56	70	55	59	706
1882	75	48	63	65	51	68	69	57	53	67	52	63	732
1883	50	52	56	50	71	63	57	62	57	51	58	51	678
1884	58	57	74	65	67	61	61	61	45	53	61	65	731
1885	55	68	67	46	62	69	66	60	56	68	69	68	754
1886	53	73	78	62	65	70	62	67	49	69	64	67	779
1887	82	49	59	70	63	80	68	73	66	92	56	74	832
1888	75	67	80	89	78	78	46	62	73	84	64	74	870
1889	58	51	76	68	72	72	77	85	68	73	70	78	848
1890	92	61	80	78	102	80	78	72	81	65	79	86	954
1891	60	63	102	79	81	60	65	68	81	86	59	98	902
1892	76	83	90	82	82	81	87	85	84	86	83	77	996
1893	63	80	92	89	86	66	98	96	70	84	77	92	993
1894	78	75	86	92	85	89	104	93	69	79	79	93	1,022
1895	99	78	86	86	74	68	106	105	81	95	67	85	1,030
1896	97	96	91	103	93	94	93	101	79	93	105	96	1,141
1897	107	118	105	88	109	83	98	114	88	113	95	99	1,217
1898	90	83	105	107	110	101	120	113	98	115	117	101	1,260
1899	96	88	112	114	106	120	112	111	101	119	118	124	1,321
1900	135	133	120	133	122	121	119	125	121	119	122	103	1,473
1901	149	114	142	124	140	147	147	111	117	125	122	137	1,575
1902	116	100	123	130	168	127	124	138	115	117	136	142	1,536
1903	165	125	153	147	128	140	147	141	124	132	123	158	1,683
1904	143	134	157	137	153	113	131	146	174	145	159	148	1,740
1905	145	132	165	169	143	150	157	143	141	164	166	159	1,834
1906	156	154	142	160	144	136	161	167	159	157	147	173	1,856

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Deaths from Bronchitis in Former

Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1866	301	256	163	123	46	29	18	24
1867	375	320	184	140	81	53	34	25
1868	403	400	186	176	63	58	36	45
1869	465	412	231	155	71	76	56	48
1870	413	442	243	186	52	60	31	44
1871	492	472	259	238	79	67	35	44
1872	504	536	269	234	75	89	41	36
1873	525	543	295	258	79	75	33	42
1874	533	532	278	238	68	71	41	47
1875	585	526	307	233	97	54	45	44
1876	629	585	331	241	89	71	44	44
1877	462	571	238	234	64	61	30	39
1878	610	574	334	268	97	67	49	42
1879	593	670	305	292	75	73	42	43
1880	704	671	352	283	84	93	46	48
1881	778	733	404	311	108	103	68	69
1882	787	796	426	344	110	123	61	80
1883	763	672	386	279	100	90	49	37
1884	723	762	377	304	99	101	41	40
1885	801	804	388	327	129	92	52	47
1886	872	829	413	324	122	112	77	68
1887	926	912	453	361	114	102	63	79
1888	955	937	518	398	102	115	49	63
1889	908	906	459	362	137	120	62	56
1890	965	1,022	498	447	145	154	78	65
1891	924	912	494	403	147	122	59	67
1892	930	824	500	385	138	139	78	64
1893	756	821	425	408	106	108	62	65
1894	675	654	358	307	141	99	61	62
1895	790	846	461	406	124	158	63	65
1896	656	636	398	323	102	117	55	57
1897	527	552	328	258	83	87	41	44

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City of New York, by Sex and Age.

Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
227	176	6	9	2	2	13	20	27	20	26	29
229	218	8	6	3	6	23	23	25	25	17	42
285	279	10	10	5	1	28	18	33	39	42	53
358	279	7	11	1	1	22	16	39	29	38	76
326	290	7	11	4	5	12	21	29	33	35	82
373	349	12	6	3	5	15	12	30	36	59	64
385	359	5	13	2	4	20	18	40	44	52	98
407	375	8	11	4	6	19	16	34	38	53	97
387	356	5	10	1	5	28	16	50	37	62	108
449	331	6	9	1	1	16	19	48	44	65	122
464	356	8	8	2	4	15	16	47	53	93	148
332	334	11	9	1	1	22	24	36	49	60	154
480	377	10	10	1	3	20	18	37	54	62	112
422	408	13	12	3	2	18	24	53	49	84	175
482	424	12	11	7	2	31	31	68	69	104	134
580	483	17	15	7	4	27	23	46	73	101	135
597	547	11	15	4	6	23	20	62	60	90	148
535	412	13	6	5	4	30	28	59	82	121	140
517	445	10	19	8	6	27	29	64	97	97	166
569	466	11	11	8	16	38	28	71	78	104	205
612	504	14	9	8	9	53	43	81	91	104	173
630	542	12	21	15	15	48	47	99	110	122	177
669	576	14	13	13	8	36	47	106	101	117	192
658	538	13	11	15	23	46	50	73	114	103	170
721	666	19	14	11	16	49	53	86	118	79	155
700	592	15	17	8	9	46	39	74	111	81	144
716	588	17	12	12	10	50	42	70	79	65	93
593	581	7	13	7	14	44	35	54	75	51	103
560	468	7	15	7	11	16	27	40	53	45	80
648	629	11	15	5	3	26	20	47	74	53	105
555	497	10	9	5	4	17	14	37	49	32	63
451	389	6	16	1	4	13	15	30	45	36	83

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Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1898	553	574	327	283	94	92	29	36
1899	582	550	377	279	90	82	38	45
1900	545	548	208	261	96	81	45	45
1901	433	501	262	244	69	81	34	38
1902	498	522	320	280	68	74	34	46
1903	413	446	222	206	77	84	34	32
1904	505	539	283	250	95	97	39	44
1905	411	453	251	229	72	65	26	26
1906	346	374	219	181	54	71	15	24

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Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
450	411	7	14	3	5	12	24	37	41	44	79
505	406	9	18	5	4	6	19	28	46	29	57
439	387	8	13	7	6	20	16	26	39	45	87
365	363	8	5	5	8	15	13	13	33	27	79
422	400	5	4	5	3	13	10	25	29	28	76
333	322	6	8	1	5	5	15	33	33	35	63
417	391	6	10	2	2	11	14	34	34	35	88
349	320	4	15	2	4	3	4	20	32	33	78
288	276	2	2	1	3	6	3	13	26	36	64

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Deaths from Bronchitis, Former New York City, by Months.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1871	93	88	97	89	101	59	53	52	69	81	81	101	964
1872	95	101	135	134	87	64	59	38	57	73	80	117	1,040
1873	122	123	107	110	98	54	54	58	44	56	114	128	1,068
1874	111	111	127	108	94	52	47	51	67	76	101	123	1,065
1875	149	110	137	110	93	55	57	44	69	90	90	107	1,111
1876	120	139	178	107	81	65	58	82	63	89	99	133	1,214
1877	115	127	129	94	72	59	50	42	56	88	90	111	1,033
1878	119	130	142	123	113	67	57	49	69	95	122	98	1,184
1879	159	130	145	114	95	63	64	51	71	111	126	134	1,263
1880	106	122	140	138	131	102	43	82	78	112	126	195	1,375
1881	166	169	153	159	120	93	81	69	86	106	135	174	1,511
1882	218	169	188	152	167	103	78	67	76	92	133	140	1,583
1883	155	132	183	174	145	79	59	68	77	87	110	166	1,435
1884	158	131	148	137	124	84	79	78	75	118	160	193	1,485
1885	157	180	210	163	137	105	93	76	89	93	124	178	1,605
1886	203	178	190	127	119	88	85	76	101	142	164	228	1,701
1887	218	168	206	180	159	109	81	98	132	151	142	194	1,838
1888	191	200	227	181	168	120	111	97	111	144	158	184	1,892
1889	182	217	234	159	133	107	96	104	105	120	129	128	1,814
1890	391	190	229	201	163	116	94	98	96	121	136	152	1,987
1891	174	127	195	333	179	120	82	82	107	124	117	196	1,836
1892	221	179	206	195	185	125	106	57	107	104	132	137	1,754
1893	181	135	241	229	134	80	68	76	82	93	101	157	1,577
1894	175	156	128	136	97	103	62	63	71	95	107	136	1,329
1895	229	195	180	167	126	86	66	70	74	118	144	181	1,636
1896	142	131	179	177	125	67	58	80	72	88	76	97	1,292
1897	100	124	125	109	103	77	51	54	72	86	83	105	1,089
1898	112	135	147	102	90	55	45	50	72	91	90	138	1,127
1899	134	123	110	105	88	68	53	46	66	101	124	114	1,132
1900	137	169	177	145	85	43	39	32	36	69	84	77	1,093
1901	112	97	115	104	69	49	27	43	44	68	74	132	934
1902	153	119	104	103	92	40	43	51	61	71	93	90	1,020
1903	88	97	93	96	91	49	37	37	53	53	76	89	859
1904	135	129	137	113	85	59	51	33	60	67	79	96	1,044
1905	104	93	110	105	74	62	45	43	35	52	69	72	864
1906	112	90	116	73	58	39	38	23	25	48	45	53	720

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Deaths from Pneumonia in Former

Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1866	764	624	219	194	102	87	75	62
1867	773	661	270	182	112	119	79	85
1868	870	798	303	263	127	144	78	89
1869	1,144	956	318	302	168	152	140	127
1870	1,046	790	295	225	146	118	86	69
1871	1,022	812	251	228	153	116	102	102
1872	1,238	912	320	221	171	122	124	100
1873	1,357	971	367	295	170	123	100	100
1874	1,335	1,063	356	277	167	135	92	105
1875	1,558	1,244	356	299	201	181	106	117
1876	1,359	1,183	352	294	194	168	141	114
1877	1,171	977	295	268	165	125	103	91
1878	1,204	1,084	310	280	200	179	139	126
1879	1,411	1,143	351	239	161	161	126	120
1880	1,552	1,270	370	293	184	188	150	126
1881	1,836	1,425	400	307	232	203	191	157
1882	1,976	1,496	441	329	250	210	192	168
1883	1,947	1,462	370	305	210	175	146	143
1884	1,767	1,392	378	328	216	215	161	124
1885	2,043	1,607	398	323	252	196	170	164
1886	2,063	1,593	456	353	259	193	148	150
1887	2,059	1,648	448	352	232	198	169	177
1888	2,422	1,866	480	435	286	232	218	177
1889	2,306	1,769	502	422	266	230	187	160
1890	2,759	2,230	552	435	310	325	207	209
1891	3,258	2,560	739	504	384	343	287	249
1892	3,363	2,478	730	598	440	362	274	243
1893	3,692	2,795	721	591	371	323	261	243
1894	2,712	2,013	660	496	356	286	243	205
1895	3,146	2,605	802	609	484	433	272	268
1896	3,046	2,337	802	620	445	370	259	246
1897	2,585	2,036	736	595	386	307	236	167

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New York City, by Age and Sex.

Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
396	343	19	17	47	41	123	87	126	79	53	57
461	386	33	24	37	30	95	80	109	77	38	64
508	496	26	27	29	48	139	93	121	80	47	54
632	581	64	39	48	30	164	116	181	97	55	93
527	412	31	26	44	33	183	137	183	100	78	82
506	446	28	39	35	32	183	106	177	105	93	84
615	443	37	57	54	31	224	131	221	142	87	108
637	518	41	42	72	44	277	139	228	127	102	101
615	517	44	45	58	42	252	151	263	165	103	143
663	597	46	42	65	56	334	179	319	177	131	193
687	576	57	43	51	58	234	177	229	168	101	161
560	484	41	38	59	49	206	128	209	160	96	118
649	585	43	42	46	35	170	133	192	149	104	140
638	520	56	51	69	42	261	163	246	194	141	173
704	607	53	59	77	52	293	188	289	211	136	153
813	677	67	72	77	53	360	213	357	227	152	193
883	707	61	69	114	61	429	219	322	261	167	179
726	623	66	73	112	74	448	243	438	251	157	198
755	667	61	66	82	67	388	209	338	234	143	149
820	683	51	57	123	82	454	277	396	315	199	193
863	676	66	70	126	79	463	256	389	268	156	224
849	727	61	69	119	81	472	268	377	283	181	220
984	844	87	81	150	76	537	305	481	334	183	226
955	812	82	59	136	114	581	279	406	313	146	192
1,069	969	84	69	183	127	720	416	516	393	187	256
1,410	1,096	121	84	182	137	719	416	552	484	274	343
1,444	1,203	113	102	191	122	816	378	570	407	229	266
1,353	1,157	99	106	233	145	985	485	769	557	253	345
1,239	987	72	78	139	100	601	319	435	318	206	211
1,558	1,310	93	97	163	124	638	367	463	383	231	324
1,506	1,236	82	79	147	91	594	301	508	368	209	262
1,358	1,069	70	73	108	90	482	259	374	275	193	270

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Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1898	2,861	2,440	759	607	428	406	259	229
1899	2,936	2,482	800	637	441	398	256	259
1900	3,715	3,032	953	689	544	491	327	323
1901	3,137	2,655	783	631	432	441	242	236
1902	3,081	2,760	930	756	502	510	258	290
1903	3,437	2,871	841	696	462	405	257	259
1904	4,629	3,400	877	763	560	496	299	245
1905	3,395	2,744	866	679	469	423	248	214
1906	3,705	2,977	1,000	851	577	487	272	233



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Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1,446	1,242	76	95	118	97	562	349	415	380	244	277
1,497	1,294	77	80	122	115	536	312	463	366	241	315
1,824	1,503	100	128	180	120	693	384	604	499	314	398
1,457	1,308	93	93	122	115	650	373	541	431	274	335
1,690	1,556	90	115	102	113	487	323	470	336	242	317
1,560	1,360	99	106	137	93	631	377	657	516	353	419
1,736	1,504	122	144	167	108	1,095	428	1,038	668	471	548
1,583	1,316	86	89	123	91	674	308	622	514	307	426
1,849	1,571	88	73	122	72	653	345	655	462	338	454

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Deaths from Pneumonia, Former New York City, by Months.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1871.....	227	195	213	188	170	94	79	63	108	157	148	192	1,834
1872.....	198	267	316	264	228	124	89	81	87	134	149	213	2,150
1873.....	224	228	280	248	269	155	116	109	105	146	229	219	2,328
1874.....	239	245	279	323	242	160	110	97	107	128	214	254	2,398
1875.....	410	297	364	278	265	149	138	113	135	174	225	254	2,802
1876.....	255	321	370	282	241	149	114	105	118	156	195	236	2,542
1877.....	263	212	278	243	194	115	105	108	109	154	176	191	2,148
1878.....	280	247	306	249	222	143	84	103	106	141	181	226	2,288
1879.....	341	251	330	274	214	126	103	92	114	171	268	270	2,554
1880.....	261	248	266	375	340	163	127	108	134	205	246	349	2,822
1881.....	366	371	391	393	282	176	151	134	157	200	254	386	3,261
1882.....	376	370	453	393	464	234	169	103	135	191	225	359	3,472
1883.....	357	361	526	472	345	213	133	122	127	182	240	331	3,409
1884.....	348	339	349	304	268	186	167	150	156	209	298	385	3,159
1885.....	376	486	587	512	337	229	150	139	149	160	217	308	3,650
1886.....	387	354	506	374	256	184	176	160	125	258	376	500	3,656
1887.....	480	370	394	466	390	164	137	119	205	260	347	375	3,707
1888.....	460	505	648	426	409	222	175	168	203	335	318	419	4,288
1889.....	405	394	534	508	352	229	147	161	205	270	308	562	4,075
1890.....	1,111	434	487	465	412	276	205	223	196	285	362	533	4,989
1891.....	502	478	646	1,112	563	352	237	208	242	296	508	674	5,518
1892.....	648	609	685	691	711	385	301	255	254	340	464	498	5,841
1893.....	687	613	1,089	1,082	653	359	252	223	234	287	379	629	6,487
1894.....	680	551	525	512	425	314	230	206	224	286	333	439	4,725
1895.....	835	609	618	681	541	311	231	258	267	366	449	575	5,751
1896.....	633	619	739	803	522	284	257	218	298	340	324	346	5,383
1897.....	422	494	627	489	401	303	228	236	259	358	353	451	4,621
1898.....	497	543	560	536	496	317	264	244	309	376	447	712	5,301
1899.....	623	584	580	556	478	324	293	231	298	365	438	648	5,418
1900.....	713	893	1,117	938	634	374	297	240	247	380	405	509	6,747
1901.....	790	493	724	612	500	336	245	231	267	371	498	705	5,792
1902.....	859	776	659	574	571	322	285	257	306	366	407	459	5,841
1903.....	692	745	742	645	616	370	321	263	268	351	548	747	6,308
1904.....	1,011	1,043	1,154	1,119	754	381	291	275	281	382	525	813	8,029
1905.....	804	684	737	701	553	375	299	261	237	340	523	625	6,139
1906.....	749	679	883	822	668	412	276	279	314	410	505	685	6,682

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** Deaths from Diseases of Nervous System, Former New York City, by Months.*

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1871	227	201	246	240	246	215	248	252	188	208	179	206	2,656
1872	207	274	350	337	342	273	348	242	198	184	184	220	3,159
1873	279	227	314	253	234	194	257	224	227	208	166	194	2,777
1874	218	209	215	210	209	207	226	213	172	193	179	181	2,432
1875	209	188	227	218	199	196	252	219	204	157	151	197	2,417
1876	209	218	222	227	181	169	319	209	177	172	170	184	2,457
1877	189	178	200	193	218	204	260	198	197	190	170	160	2,357
1878	207	167	227	206	154	196	288	210	180	176	163	184	2,358
1879	245	192	230	175	203	213	250	194	186	190	162	205	2,445
1880	218	199	224	221	271	259	236	217	198	207	211	206	2,672
1881	277	269	312	334	276	225	270	248	224	234	215	256	3,140
1882	265	241	252	273	244	250	305	218	211	194	191	221	2,865
1883	229	226	267	249	234	213	267	205	221	182	206	228	2,727
1884	238	222	267	275	232	274	256	258	222	217	203	247	2,911
1885	261	281	304	269	256	260	311	233	222	213	242	243	3,095
1886	258	253	290	293	266	251	296	247	204	240	217	266	3,081
1887	261	277	300	286	318	292	348	263	253	269	228	278	3,373
1888	212	207	286	327	298	337	296	338	319	264	256	329	3,529
1889	300	303	369	302	289	300	322	255	243	243	257	308	3,491
1890	303	262	305	313	271	272	296	251	218	246	204	269	3,210
1891	282	258	313	336	221	333	233	315	260	249	251	290	3,341
1892	293	298	372	333	336	317	397	265	245	254	246	299	3,655
1893	306	300	405	404	348	306	353	303	233	275	236	281	3,750
1894	323	303	330	315	300	319	326	226	253	238	252	281	3,466
1895	316	282	322	322	300	310	297	292	274	235	241	238	3,429
1896	268	272	324	301	297	277	316	355	238	249	218	243	3,358
1897	273	291	340	324	259	290	283	240	270	253	228	294	3,345
1898	314	285	283	300	271	250	250	249	239	228	222	264	3,155
1899	311	272	320	274	258	270	244	242	231	242	233	293	3,190
1900	274	297	348	326	292	213	242	181	203	229	227	259	3,091
1901	303	245	362	329	306	289	326	251	232	240	232	289	3,404
1902	311	327	325	349	258	242	281	242	228	282	260	294	3,399
1903	270	275	284	327	313	257	226	216	210	272	271	291	3,241
1904	352	307	415	549	572	416	326	263	266	286	299	391	4,442
1905	425	435	619	621	500	347	312	229	268	261	246	318	4,591
1906	330	345	330	404	375	264	233	245	259	287	261	279	3,612

* Includes deaths from cerebro-spinal meningitis from 1901 on.

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Deaths from Bright's Disease in Former

Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1866	242	170	2	2	2	3	11	4
1867	225	178	1	..	2	..	5	1
1868	301	233	1	1	3	2	10	9
1869	330	227	2	2	3	2	14	7
1870	432	355	2	2	5	1	13	7
1871	501	446	2	1	3	2	16	3
1872	523	426	3	..	3	1	7	7
1873	431	445	..	..	2	1	6	11
1874	429	399	2	2	2	2	6	8
1875	461	448	2	4	..	..	5	5
1876	516	442	1	..	1	3	6	4
1877	493	430	2	..	2	..	9	5
1878	499	420	2	1	2	1	15	3
1879	526	501	3	..	1	1	10	8
1880	540	489	2	..	2	..	6	1
1881	655	532	6	1	2	..	9	4
1882	640	601	2	4	1	2	10	11
1883	661	534	2	..	4	4	6	2
1884	609	554	3	2	3	2	9	8
1885	658	530	4	4	1	1	6	2
1886	627	583	3	2	2	1	4	6
1887	581	547	1	2	2	2	4	5
1888	585	562	1	4	2	1	10	7
1889	969	794	4	2	4	1	10	5
1890	1,089	935	1	2	1	..	8	7
1891	1,153	963	5	2	2	1	12	8
1892	1,078	913	6	3	4	1	8	8
1893	1,140	931	1	1	1	1	9	5
1894	1,023	856	1	1	1	1	10	3
1895	1,082	937	2	1	1	3	1	7
1896	1,173	1,022	1	3	5	3	3	3
1897	1,054	1,005	2	..	1	..	4	6

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New York City, by Sex and Age.

Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
15	9	14	11	23	26	94	53	76	47	20	24
8	1	11	6	18	29	84	87	86	44	18	11
14	12	8	10	25	25	122	100	89	56	43	30
19	11	21	19	25	31	117	71	112	66	36	29
20	10	14	5	39	43	144	139	150	115	65	43
21	6	14	14	29	33	180	188	184	159	73	46
13	8	16	21	36	35	201	168	185	140	72	54
8	12	13	9	27	36	158	182	173	149	52	57
10	12	12	11	18	36	146	163	185	113	58	64
7	9	7	9	27	42	166	175	193	152	61	61
8	7	16	9	27	31	183	165	203	171	79	59
13	5	18	15	22	31	173	166	194	142	73	71
19	5	17	14	29	37	158	130	196	157	80	77
14	9	14	14	36	35	181	185	208	183	73	75
10	1	15	10	24	28	179	180	233	186	79	84
17	5	15	13	31	28	204	179	275	208	113	99
13	17	12	12	28	41	230	204	259	218	98	109
12	6	14	16	28	28	229	172	266	211	112	101
15	12	14	12	23	44	190	175	259	210	108	101
11	7	14	12	26	45	197	159	278	220	132	87
9	9	6	8	27	24	191	175	266	229	128	138
7	9	13	8	28	27	182	187	227	204	124	112
13	12	18	14	33	41	171	178	244	222	106	95
18	8	11	13	36	49	313	241	408	305	183	178
10	9	10	6	33	57	366	269	450	391	219	203
19	11	14	20	49	38	388	318	468	371	215	205
18	12	23	16	39	61	349	310	460	352	189	162
11	7	13	17	44	40	373	280	463	397	236	190
12	5	18	15	46	47	305	275	438	337	204	177
4	11	8	5	30	35	290	248	493	401	257	237
9	9	8	12	35	39	308	270	513	406	300	286
7	6	9	12	38	49	268	239	454	412	278	287

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Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1898	1,304	1,122	1	2	3	1	5	1
1899	1,496	1,243	5	3	2	1	9	3
1900	1,521	1,403	6	6	8	3	15	7
1901	1,601	1,350	22	10	6	6	19	15
1902	1,542	1,272	14	7	4	2	16	10
1903	1,522	1,296	1	3	2	2	8	2
1904	1,665	1,481	4	6	1	1	3	4
1905	1,690	1,485	2	5	..	1	2	..
1906	1,811	1,421	1	1	..	..	4	..

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Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
9	4	4	15	47	44	323	289	579	464	342	306
16	7	14	22	44	49	393	334	654	538	375	293
29	16	9	21	44	45	416	388	678	581	345	352
47	31	26	20	43	47	464	362	653	508	368	382
34	19	15	17	45	51	446	316	666	554	335	315
11	7	15	18	40	40	386	332	651	547	419	352
8	11	5	15	47	50	413	368	749	609	443	428
4	6	10	10	40	38	381	340	744	615	511	476
5	1	7	11	39	46	466	372	802	547	492	414

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Deaths from Bright's Disease and Nephritis, Former New York City, by Months.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1871	77	86	101	100	102	89	82	82	82	79	77	73	1,030
1872	72	75	99	113	100	76	81	78	89	73	75	98	1,029
1873	83	72	99	86	91	74	88	87	71	68	90	76	985
1874	85	60	111	70	88	58	65	86	77	83	100	92	975
1875	109	97	90	94	86	81	92	85	82	85	93	113	1,107
1876	86	111	130	106	92	83	106	86	72	83	84	93	1,132
1877	93	65	112	106	104	81	90	85	97	105	107	94	1,139
1878	86	88	108	106	104	96	94	99	76	90	97	117	1,161
1879	144	113	119	111	120	101	125	85	92	102	120	116	1,348
1880	107	106	87	127	123	127	114	117	106	128	113	163	1,418
1881	144	133	135	165	143	136	157	121	119	161	142	144	1,701
1882	161	173	161	165	168	146	139	146	146	163	142	146	1,856
1883	157	159	156	143	175	146	157	150	154	155	153	149	1,854
1884	148	168	164	170	164	160	177	141	160	165	160	151	1,928
1885	196	173	183	192	196	170	176	150	164	164	165	166	2,095
1886	179	156	212	191	192	142	173	208	186	185	178	212	2,214
1887	196	177	207	231	202	216	221	184	176	188	175	202	2,375
1888	189	208	238	197	233	179	188	186	138	185	186	215	2,342
1889	225	250	216	229	179	171	215	198	151	189	182	232	2.437
1890	241	163	219	200	218	207	217	172	162	205	193	213	2,410
1891	220	204	235	270	216	198	202	194	164	196	176	226	2.501
1892	211	205	209	231	218	157	211	186	180	189	191	207	2,395
1893	208	180	286	248	250	194	212	191	186	203	186	227	2.571
1894	244	202	221	214	207	192	191	211	156	200	234	207	2.479
1895	256	231	258	244	232	222	230	178	186	228	223	209	2,697
1896	269	260	265	231	223	204	225	238	169	189	200	212	2,685
1897	235	186	256	250	234	207	172	188	169	189	203	210	2,499
1898	276	266	278	282	260	237	210	220	207	211	242	272	2,961
1899	268	248	267	276	264	257	267	274	221	297	275	280	3,194
1900	326	312	341	293	288	249	264	214	240	274	305	288	3.394
1901	341	273	304	310	233	230	243	179	247	292	313	326	3,291
1902	303	285	295	293	263	254	219	250	224	283	226	303	3,198
1903	344	282	297	276	293	239	232	214	205	244	280	294	3,200
1904	347	337	322	325	304	246	291	270	261	267	328	312	3,610
1905	334	305	369	310	282	284	280	258	249	308	320	295	3,594
1906	311	333	344	313	320	258	258	292	281	272	266	370	3,618

This table includes all acute and chronic forms of nephritis.

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Deaths from Heart Diseases, Former New York City, by Months.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1871	79	58	69	80	84	54	57	60	54	58	73	87	813
1872	95	77	86	75	84	77	62	64	57	69	77	71	894
1873	76	56	80	68	77	75	55	66	73	67	86	81	860
1874	77	76	63	88	87	59	63	59	62	87	71	91	883
1875	102	83	70	95	85	77	72	73	67	82	70	104	985
1876	86	74	86	84	77	76	90	70	76	94	77	102	992
1877	84	61	99	71	75	68	63	61	53	78	72	94	879
1878	106	82	106	102	86	80	66	62	91	89	85	113	1,068
1879	115	137	121	102	80	93	81	94	81	81	102	77	1,164
1880	123	93	104	99	99	94	86	81	74	96	83	121	1,153
1881	134	106	109	130	134	96	88	90	102	93	101	106	1,289
1882	131	102	130	156	137	121	126	92	86	111	142	143	1,477
1883	160	157	146	147	150	125	132	122	118	129	138	169	1,693
1884	153	130	158	135	162	129	118	109	111	136	160	161	1,662
1885	155	164	172	183	168	135	137	126	121	130	144	165	1,800
1886	183	180	186	165	154	154	144	122	119	121	169	107	1,894
1887	162	178	196	184	168	143	149	144	188	149	173	184	2,018
1888	174	153	176	168	172	143	139	126	148	171	163	147	1,830
1889	165	167	189	158	186	135	148	151	132	151	175	213	1,970
1890	184	155	196	176	194	162	146	143	122	151	167	182	1,978
1891	223	142	235	221	215	177	167	174	146	200	185	200	2,285
1892	208	222	232	244	184	182	191	150	144	186	177	210	2,330
1893	236	200	252	229	221	192	198	175	150	162	169	195	2,379
1894	212	183	195	194	191	185	172	169	160	156	189	164	2,170
1895	234	199	231	205	191	149	169	194	145	197	168	215	2,297
1896	217	191	242	215	214	165	170	165	185	246	197	189	2,336
1897	234	185	256	219	194	162	160	177	178	197	172	212	2,346
1898	193	154	168	170	203	195	143	180	201	237	244	291	2,379
1899	204	218	233	218	189	137	129	131	154	181	197	212	2,203
1900	199	184	222	240	222	168	155	172	148	187	166	213	2,276
1901	253	279	338	292	303	270	187	195	214	212	247	292	3,088
1902	334	301	316	311	307	240	201	216	186	256	233	232	3,133
1903	278	263	277	297	253	243	225	226	200	249	292	251	3,064
1904	283	273	297	324	275	184	207	236	197	265	285	340	3,138
1905	242	315	274	287	268	215	213	207	243	257	267	284	3,072
1906	290	269	299	333	301	258	290	236	273	283	326	348	3,506

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Deaths from Puerperal Diseases, Former New York City, by Months.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1871....	29	36	37	36	45	28	23	30	15	30	30	42	381
1872.....	34	52	52	52	44	33	36	45	22	24	33	49	476
1873.....	54	50	55	52	45	31	23	26	18	23	27	23	427
1874.....	34	47	35	49	44	37	30	32	22	13	17	33	393
1875.....	39	38	58	44	30	24	26	21	17	18	24	31	370
1876.....	35	28	34	34	28	27	32	21	24	25	27	27	342
1877.....	29	32	42	23	20	19	21	19	22	21	21	29	298
1878.....	28	25	36	33	20	32	26	20	14	14	28	24	300
1879.....	30	47	44	53	34	22	27	30	21	10	24	17	359
1880.....	40	33	37	49	42	42	24	24	27	24	20	45	407
1881...	61	67	48	40	36	18	32	33	25	25	14	27	426
1882.....	35	43	51	50	59	29	21	29	23	18	28	21	407
1883.....	45	36	51	39	40	33	27	26	19	23	39	38	416
1884.....	46	54	56	47	42	35	29	25	28	20	33	23	438
1885.....	41	33	51	38	36	35	44	17	25	23	25	26	394
1886.....	41	44	46	33	33	28	26	30	23	18	25	24	371
1887.....	29	37	31	44	28	30	32	24	21	19	25	35	355
1888.....	30	49	60	35	37	37	29	35	25	32	30	43	442
1889.....	27	43	56	52	37	25	24	32	27	25	21	24	393
1890.....	29	31	40	38	35	41	29	24	14	27	43	32	383
1891.....	39	49	41	36	44	42	24	29	27	25	24	40	420
1892.....	52	51	51	51	38	33	30	19	26	25	17	24	417
1893..... .	48	32	41	43	35	28	31	33	22	19	18	31	384
1894.....	44	35	39	31	40	34	21	22	25	27	16	24	358
1895.....	37	41	42	35	33	24	40	22	28	30	37	40	409
1896.....	38	44	47	44	37	31	30	30	21	28	33	33	416
1897.....	39	34	43	31	32	34	39	28	26	41	27	29	403
1898.....	36	25	28	36	36	45	27	29	25	33	26	30	376
1899.....	40	28	44	37	34	36	29	31	23	25	25	33	385
1900.....	46	41	61	36	36	40	30	33	22	24	29	25	428
1901.....	45	41	47	40	23	28	28	21	37	28	28	35	401
1902.....	33	38	45	47	38	32	33	30	29	20	27	32	409
1903.....	30	36	36	39	40	26	35	23	21	31	31	27	375
1904.....	50	58	42	62	41	31	36	30	22	23	21	31	447
1905.....	39	44	52	48	43	31	39	35	36	37	36	45	485
1906.....	42	39	55	43	48	33	36	31	21	32	26	52	458

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Deaths from Sunstroke, Former New York City, by Months.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1871	..	..	..	1	4	5	7	4	..	..	..	..	21
1872	..	..	..	..	2	13	236	63	6	..	..	..	320
1873	..	..	..	..	2	6	24	2	..	..	..	..	34
1874	..	..	..	..	..	4	12	3	..	..	..	..	19
1875	..	..	..	..	..	9	7	..	3	..	..	..	19
1876	..	..	..	..	1	6	187	11	1	..	..	..	206
1877	..	..	..	..	3	..	8	10	..	..	..	..	21
1878	..	..	..	..	..	5	43	2	2	..	..	..	52
1879	..	..	..	..	..	7	18	16	..	..	..	..	41
1880	..	..	..	..	23	35	39	10	9	..	..	..	116
1881	..	..	..	..	9	1	18	49	55	2	..	..	134
1882	..	..	..	..	..	12	79	11	1	..	..	..	103
1883	..	..	..	..	1	12	65	5	..	..	..	..	83
1884	..	..	..	..	1	9	5	17	75	..	..	..	107
1885	..	..	..	..	..	6	127	13	..	..	..	..	146
1886	..	..	..	..	..	4	23	15	..	..	..	..	42
1887	..	..	..	..	1	4	152	59	..	..	..	..	216
1888	..	..	..	..	..	65	11	19	1	..	..	..	96
1889	..	..	..	..	..	7	14	10	1	..	..	..	32
1890	..	..	..	..	..	7	29	25	1	..	..	..	62
1891	..	..	..	..	..	35	5	51	4	..	..	..	95
1892	..	..	..	..	..	29	252	39	..	..	..	..	320
1893	..	..	..	..	..	12	20	10	1	..	..	..	43
1894	..	..	..	..	..	27	78	7	3	..	..	..	115
1895	..	..	..	..	5	45	4	18	13	..	..	..	85
1896	..	..	..	1	4	5	30	725	..	..	..	..	765
1897	..	..	..	..	..	3	28	2	6	..	..	..	39
1898	..	..	..	..	..	14	75	46	253	..	..	..	388
1899	..	..	..	.	..	80	10	5	..	..	..	..	95
1900	..	..	..	..	..	10	106	79	10	..	..	..	205
1901	..	..	..	..	1	47	826	24	..	..	..	..	898
1902	..	..	..	..	3	4	14	4	..	..	..	..	25
1903	..	..	..	..	10	..	62	3	1	..	..	..	76
1904	..	..	..	..	1	7	13	1	..	..	..	..	22
1905	..	..	..	..	..	4	126	4	..	..	..	..	134
1906	..	..	..	..	1	3	27	41	3	..	..	..	75

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Deaths from Sunstroke in Form

Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1866	221	89	..	1	1	..	..	1
1867	4	1	..	..	..	..	..	..
1868	159	37	..	4	..	1	..	2
1869	24	2	..	..	1	..	..	..
1870	181	57	9	4	1	1	1	..
1871	17	4	..	1	..	1	1	..
1872	220	100	10	6	4	1	3	2
1873	25	9	2	3	1	2	3	1
1874	15	4	1	..	..	..	..	..
1875	11	8	1	1	..	..	..	2
1876	155	51	11	2	3	1	3	1
1877	16	5	1	1	..	1	1	1
1878	40	12	7	2	..	1	..	2
1879	34	7	2	2	1	..	..	..
1880	78	38	11	10	2	2	2	.
1881	108	26	8	6	2	1	4	2
1882	78	25	5	8	1	3	2	2
1883	60	23	3	9	..	..	5	..
1884	75	32	5	5	4	1	2	1
1885	108	38	10	5	1	1	2	..
1886	31	11	1	2	..	1	1	..
1887	173	43	11	10	3	2	2	2
1888	66	30	9	10	2	1	2	1
1889	24	8	5	5	1	1	1	1
1890	47	15	1	4	1	2	..	2
1891	78	17	13	6	1	1	..	..
1892	226	94	9	9	3	1	3	1
1893	32	11	3	2	1	3	..	..
1894	89	26	4	4	..	1	2	3
1895	53	32	9	9	2	2	4	3
1896	549	216	17	13	4	4	1	1
1897	30	9	7	1	3	2	1	..



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er New York City by Age and Sex.

Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1	2	..	..	24	12	139	50	48	18	9	7
..	..	1	..	1	..	1	1	1	..	..	..
..	7	1	..	23	4	99	18	34	6	2	2
1	..	1	1	2	..	16	1	4	..	..	..
11	5	2	..	15	6	99	29	50	11	4	6
1	2	1	..	1	..	9	1	4	1	1	..
17	9	6	3	16	11	118	49	59	18	4	10
6	6	1	..	5	1	10	1	3	1	..	..
1	..	..	..	1	1	8	2	5	..	..	1
1	3	1	1	..	1	4	2	3	..	2	1
17	4	1	4	5	6	99	16	28	13	5	8
2	3	2	..	1	1	4	..	5	..	2	1
7	5	2	..	2	..	18	3	8	2	3	2
3	2	4	..	..	..	20	2	6	2	1	1
15	12	2	2	8	5	38	5	12	11	3	3
14	9	3	2	12	..	52	4	24	6	3	5
8	13	1	..	7	3	44	4	16	4	2	1
8	9	1	1	5	5	31	3	11	3	4	2
11	7	2	..	8	2	36	9	17	5	1	9
13	6	2	2	4	2	60	11	26	11	3	6
2	3	1	1	4	1	14	1	9	4	1	1
16	14	2	..	14	4	105	10	33	11	3	4
13	12	1	3	5	1	31	4	11	5	5	5
7	7	2	..	2	..	7	..	4	1	2	..
2	8	..	..	5	..	27	2	8	5	5	..
14	7	3	..	7	2	34	2	15	3	5	3
15	11	2	1	11	8	106	32	85	35	7	7
4	5	2	..	3	1	14	3	8	2	1	..
6	8	1	4	9	3	59	4	12	6	2	1
15	14	..	..	4	1	16	6	16	7	2	4
22	18	4	..	20	9	301	58	174	87	28	44
11	3	2	..	2	2	11	2	4	2	..	..

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Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1898	270	118	31	32	5	7	1	3
1899	55	40	16	9	2	3	2	2
1900	140	65	14	22	2	4	1	5
1901	506	392	67	38	16	20	7	5
1902	15	10	1	3	..	..	..	1
1903	41	35	6	11	2	2	1	3
1904	13	9	3	3	..	..	1	..
1905	100	51	18	13	3	1	6	2
1906	42	33	8	7	2	1	1	..

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Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
37	42	1	1	5	3	141	22	68	32	18	18
20	14	2	3	4	..	16	7	6	10	7	6
17	31	3	..	9	3	66	3	32	21	13	7
90	63	2	11	10	9	176	66	163	135	65	108
1	4	..	1	1	..	10	..	1	..	2	5
9	16	1	2	2	..	7	4	16	7	6	6
4	3	1	..	1	..	7	1	..	4	..	1
27	16	3	1	5	3	29	8	25	9	11	14
11	8	..	1	1	2	18	5	12	6	..	11

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Deaths from Suicide in Form

Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1866	40	14	..	..	..	..	..	..
1867	63	19	..	..	..	..	..	..
1868	69	29	..	..	..	..	..	..
1869	76	26	..	..	..	..	..	..
1870	79	22	..	..	..	..	..	..
1871	85	29	..	..	..	..	..	..
1872	111	33	..	..	..	..	..	..
1873	82	36	..	..	..	..	..	..
1874	140	40	..	..	..	..	..	..
1875	123	32	..	..	..	..	..	..
1876	114	36	..	..	..	..	..	..
1877	123	25	..	..	..	..	..	..
1878	116	26	..	..	..	..	..	..
1879	100	17	..	..	..	..	..	..
1880	120	32	..	..	..	..	..	..
1881	133	33	..	..	..	..	..	..
1882	161	38	..	..	..	..	..	..
1883	134	27	..	..	..	..	..	..
1884	189	40	..	..	..	..	..	..
1885	167	40	..	..	..	..	..	..
1886	172	51	..	..	..	..	..	..
1887	183	52	..	..	..	..	..	..
1888	202	45	..	..	..	..	..	..
1889	200	44	..	..	..	..	..	..
1890	190	49	..	..	..	..	..	..
1891	239	61	..	..	..	..	..	..
1892	202	39	..	..	..	..	..	..
1893	256	58	..	..	..	..	..	..
1894	268	63	..	..	..	..	..	..
1895	286	90	..	..	..	..	..	..
1896	295	89	..	..	..	..	..	..
1897	322	114	..	..	..	..	..	..



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er New York City by Age and Sex.

Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
..	..	..	..	6	2	21	8	12	4	1	..
..	..	..	..	8	7	37	8	14	3	4	1
..	..	3	..	4	5	35	15	25	9	2	..
..	..	..	..	7	2	34	19	31	4	4	1
..	..	..	..	6	2	39	11	29	8	5	1
..	..	..	2	15	5	40	13	26	6	4	3
..	..	1	..	17	6	56	19	30	7	7	1
..	..	1	..	8	7	54	17	13	10	6	2
..	..	1	..	11	9	77	17	47	12	4	2
..	..	..	..	12	10	60	12	45	6	6	4
..	..	..	..	8	4	52	20	48	11	6	1
..	..	..	..	20	3	62	16	32	6	9	..
..	..	..	..	8	6	53	9	49	7	6	4
..	..	..	..	10	1	53	8	31	7	6	1
..	..	..	..	15	3	58	20	38	7	9	2
..	..	..	1	9	6	78	11	37	12	9	3
..	..	2	..	16	10	75	17	57	11	11	..
..	..	..	..	15	7	27	7	70	11	22	2
..	..	..	..	17	8	94	20	57	10	21	2
..	..	..	..	26	9	74	18	60	7	7	6
..	..	..	..	13	10	82	22	64	17	13	2
..	..	..	..	23	15	94	22	50	15	16	..
..	..	1	..	22	14	87	21	80	8	12	2
..	..	1	..	31	13	81	18	71	11	16	2
..	..	..	..	21	7	100	32	62	9	7	1
..	..	..	..	24	15	116	29	84	12	15	5
..	..	..	1	17	9	100	18	70	8	15	3
..	..	..	..	28	18	120	27	84	7	24	6
..	..	..	..	23	14	136	35	90	10	19	4
..	..	..	..	23	21	128	49	115	18	20	2
..	..	2	..	31	20	136	47	105	17	21	5
..	..	..	..	20	30	148	72	127	12	27	..

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Year.	Total.		Under 1 Year.		1 Year and Under 2 Years.		2 Years and Under 5 Years.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1898.....	337	126	..	..	..	..	..	..
1899.....	315	118	..	..	..	..	..	..
1900.....	382	118	..	..	..	..	..	..
1901.....	327	143	..	..	..	..	..	..
1902.....	354	123	..	..	..	..	..	..
1903.....	384	137	..	..	..	..	..	..
1904.....	417	150	..	..	..	..	..	..
1905.....	331	91	..	..	..	..	..	..
1906.....	336	106	..	..	..	..	..	..

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Total Under 5 Years.		5 Years and Under 15 Years.		15 Years and Under 25 Years.		25 Years and Under 45 Years.		45 Years and Under 65 Years.		65 Years and Over.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
..	..	1	..	40	41	164	55	107	25	25	5
..	..	1	..	30	32	156	56	104	23	24	7
..	..	..	..	32	34	196	60	128	19	26	5
..	..	..	..	38	30	158	73	106	30	25	10
..	..	..	..	39	26	177	60	108	30	30	7
..	..	..	..	30	27	192	78	140	23	22	9
..	..	..	..	42	36	205	77	141	30	29	7
..	..	..	..	38	18	161	49	107	22	25	2
..	..	1	..	36	15	155	52	119	36	25	3

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Deaths from Suicide in the Former New York City, by Months.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1871	4	6	11	10	6	14	12	9	12	12	8	10	114
1872	14	10	14	11	18	8	21	11	14	14	6	3	144
1873	10	11	8	14	13	6	4	11	14	11	6	10	118
1874	7	8	14	11	25	19	18	16	19	10	17	16	180
1875	19	4	8	12	20	24	19	12	12	9	8	8	155
1876	12	7	13	12	16	18	16	18	8	9	12	9	150
1877	11	6	6	15	18	11	13	11	9	12	16	15	148
1878	14	6	13	12	5	12	14	17	10	11	13	15	142
1879	8	12	9	12	16	12	8	8	7	9	10	6	117
1880	9	8	9	18	20	18	18	9	10	8	17	8	152
1881	8	5	13	13	27	6	16	17	15	16	13	17	166
1882	14	18	20	26	18	19	17	14	15	14	14	10	199
1883	14	8	10	11	15	7	20	20	13	18	11	14	161
1884	9	23	22	23	20	24	22	14	23	13	17	19	229
1885	11	11	16	24	27	22	18	13	19	14	14	18	207
1886	22	18	20	21	21	19	23	14	16	12	17	20	223
1887	10	16	22	18	24	15	29	23	19	20	21	18	235
1888	18	16	21	25	28	22	19	14	15	24	24	21	247
1889	22	18	17	33	22	21	22	13	16	19	20	21	244
1890	28	22	21	21	15	21	18	17	23	14	26	13	239
1891	15	26	20	34	33	37	21	18	22	27	18	29	300
1892	14	17	14	21	27	23	24	30	20	15	17	19	241
1893	24	20	20	17	27	28	26	22	42	33	27	28	314
1894	25	22	34	33	33	27	25	30	26	40	18	18	331
1895	29	29	32	29	35	43	30	34	20	34	32	29	376
1896	42	32	22	26	28	29	41	34	33	25	38	34	384
1897	38	24	25	39	47	39	42	42	36	38	29	37	436
1898	39	33	33	47	42	45	35	39	27	39	40	44	463
1899	43	33	43	41	37	32	26	44	40	44	22	28	433
1900	44	36	44	42	47	39	45	41	43	37	35	47	500
1901	47	34	42	35	35	46	41	41	42	31	36	40	470
1902	32	23	39	43	56	39	39	36	55	41	49	25	477
1903	34	36	36	45	51	55	46	40	54	40	49	35	521
1904	40	43	63	59	57	71	43	47	39	35	35	35	567
1905	36	28	43	44	44	37	25	24	32	30	41	38	422
1906	49	39	44	43	41	25	34	37	28	36	31	35	442

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Deaths by Chloroform, Ether, Illuminating Gas, Railroad, Elevated Railroads, Horse, Cable and Electric Cars, Street Vehicles and Electric Current, in Former New York City, from 1870 to 1906, inclusive.

Causes of Death—Accidents.	Chloroform.	Ether.	*Illuminating Gas.	Steam Railroads.	Elevated Railroads.	Horse, Cable and Electric Cars.	Subway Cars.	Street Vehicles.	Electric Current.
1870	1	..	1	26	..	45	..	18	..
1871	1	..	7	24	..	52	..	37	..
1872	1	2	1	29	..	54	..	33	..
1873	1	..	1	31	..	46	..	39	..
1874	1	..	1	22	..	33	..	26	..
1875	..	1	..	28	..	31	..	30	..
1876	1	1	..	22	..	26	..	24	..
1877	..	..	..	28	..	20	..	22	..
1878	2	2	2	25	1	34	..	42	..
1879	2	2	..	22	23	24	..	35	..
1880	1	1	9	22	9	26	..	45	..
1881	1	1	12	34	10	28	..	29	1
1882	..	..	16	38	15	29	..	41	1
1883	..	..	11	26	10	24	..	35	..
1884	2	2	18	21	9	30	..	33	..
1885	1	1	13	26	14	23	..	27	..
1886	4	4	27	27	10	25	..	31	..
1887	1	1	22	22	15	21	..	39	3
1888	..	..	32	39	6	14	..	55	5
1889	1	1	30	59	4	24	..	57	8
1890	4	4	36	58	3	12	..	44	2
1891	1	2	35	53	12	47	..	54	2
1892	7	1	52	56	8	49	..	73	..
1893	5	4	38	44	7	44	..	54	2
1894	2	1	31	48	10	43	..	85	1
1895	1	2	47	58	7	47	..	100	1
1896	3	1	42	47	9	56	..	109	4
1897	1	3	48	49	8	55	..	86	3
1898	3	1	60	39	11	64	..	104	3
1899	5	..	65	41	9	91	..	118	4
1900	5	6	103	44	9	99	..	117	6
1901	4	2	114	31	7	116	..	114	9
1902	4	1	154	60	23	111	..	158	7
1903	6	2	176	30	19	97	..	189	8
1904	10	7	215	44	14	98	..	204	8
1905	2	7	218	82	33	104	21	204	7
1906	8	4	139	110	14	140	19	246	11

* Previous to 1880 most of the deaths caused by illuminating gas were supposed to be intentional and were classed with suicides. Since that year the deaths believed to be accidental have been separated from the others.

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Deaths from Small-pox, Cholera, Yellow Fever and Hydrophobia, in Former New York City, from 1804 to 1906, inclusive.

Year.	‡Small-pox.	Cholera.	*Yellow Fever.	†Hydrophobia.
1804	169		..	..
1805	62		270	..
1806	48		..	..
1807	29		..	..
1808	62		..	..
1809	66		13	..
1810	4		..	..
1811	117		..	..
1812	21		..	..
1813	2		..	..
1814	2	..	..	2
1815	94		..	..
1816	179		..	..
1817	14		1	..
1818	19		..	..
1819	..		23	..
1820	..		..	1
1821	..		3	..
1822	..		166	..
1823	18		1	..
1824	394		..	..
1825	40		..	..
1826	58		..	..
1827	149		..	..
1828	93		..	..
1829	16		..	..
1830	176		..	1
1831	224		..	1
1832	89	3,513	..	..
1833	25		..	1
1834	233	971	..	..
1835	351		..	2
1836	173		..	3

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Year.	‡ Small-pox.	Cholera.	* Yellow Fever.	†Hydrophobia.
1837	170			3
1838	91			2
1839	69	2	2	2
1840	234	1		
1841	220			1
1842	181			
1843	119			
1844	20	15		1
1845	425	6		
1846	141			
1847	53			
1848	585	2		7
1849	372	5,071		2
1850	241	57		4
1851	586			
1852	516	374	1	1
1853	681	33	5	1
1854	624	2,509	6	
1855	107	19	2	4
1856	396	8	13	3
1857	434	11		2
1858	511	5	5	
1859	62	9	4	2
1860	289	18	2	
1861	616	12		5
1862	269	9		1
1863	78	9		3
1864	394	12	2	1
1865	674	10		3
1866	44	1,137		2
1867	19	82	3	4
1868	26	9	1	1
1869	203	6	1	5
1870	293	1	3	3
1871	805	6	2	7
1872	929	4		6

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Year.	‡ Small-pox.	Cholera.	* Yellow Fever.	†Hydrophobia.
1873	117	1	3	
1874	484	2		5
1875	1,280			
1876	315		1	5
1877	14	2	1	4
1878	2			2
1879	25		2	
1880	31		1	
1881	451			3
1882	259			2
1883	12			1
1884			3	1
1885	26		1	
1886	31		1	
1887	99			1
1888	81		3	
1889	1			1
1890	2			1
1891	2			
1892	81	9	1	
1893	102			2
1894	154			3
1895	10			3
1896	1			
1897	24			1
1898	1		1	3
1899	18			1
1900	12			4
1901	399			5
1902	218			4
1903	3			3
1904	1			
1905	1			2
1906				

* The number of deaths from Yellow Fever in the year 1798, as reported to Mayor Varick, was 714.

† In 1874 there was a death reported as due to Hyssophobia in addition to the 5 deaths from Hydrophobia.

‡ Vaccinating Corps organized September 27, 1874, under act of Legislature passed June 15, 1874.

Note.—These diseases have been selected from the confessedly imperfect records of the years preceding the organization of the Health Department, as being diseases of such bold characteristics and exciting so great public interest as to make it probable that the record of them is complete.

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Marriages Reported by Months, Since 1866, Former New York City, by Months.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1866....	256	228	229	274	461	523	601	554	604	767	683	612	2,792
1867.....	557	493	517	636	766	727	580	530	645	674	578	441	7,144
1868.....	569	547	469	615	744	635	524	584	584	623	658	374	6,926
1869.....	687	621	565	883	832	709	656	608	998	620	822	694	8,695
1870.....	717	580	734	500	702	804	590	538	628	662	1,049	481	7,985
1871.....	636	640	523	654	830	749	583	651	901	894	808	777	8,646
1872.....	723	713	515	864	833	767	699	639	779	885	863	728	9,008
1873.....	778	687	645	776	852	853	649	606	781	825	733	686	8,871
1874.....	639	622	611	765	806	781	655	538	723	830	737	690	8,397
1875.....	583	579	489	724	736	677	649	518	620	710	732	548	7,565
1876...	610	654	541	566	623	652	471	521	580	735	594	552	7,099
1877.....	555	526	526	585	693	619	510	504	596	706	692	617	7,129
1878.....	600	507	637	635	665	684	555	472	670	750	748	706	7,629
1879.....	673	589	530	664	754	752	615	515	717	976	888	773	8,446
1880.....	766	729	645	746	732	800	618	589	768	882	857	870	9,002
1881.....	700	670	858	750	918	950	735	709	827	1,027	1,073	860	10,077
1882.....	925	946	820	784	1,000	980	732	838	927	1,064	1,000	1,069	11,085
1883.....	964	783	863	1,001	1,124	1,068	850	809	910	1,162	986	1,036	11,556
1884.....	1,020	885	766	950	1,114	1,018	966	731	976	1,253	1,136	990	11,805
1885.....	1,000	915	901	957	992	1,052	816	748	978	1,170	1,106	1,081	11,716
1886.....	904	865	1,061	909	973	1,058	960	768	1,167	1,164	1,321	1,066	12,216
1887.....	1,043	978	1,088	1,090	1,133	1,242	1,007	1,000	1,170	1,335	1,434	1,220	13,740
1888..... ..	1,246	1,020	1,019	1,134	1,262	1,391	1,047	1,150	1,164	1,492	1,278	1,330	14,533
1889.....	1,202	1,090	1,133	1,056	1,300	1,332	1,042	1,019	1,240	1,326	1,436	1,224	14,400
1890.....	1,304	1,154	1,128	1,298	1,157	1,402	1,028	1,009	1,253	1,493	1,313	1,453	14,992
1891.....	1,258	1,267	1,131	1,470	1,221	1,393	1,321	995	1,317	1,408	1,413	1,570	15,764
1892.....	1,196	1,332	1,334	1,205.	1,272	1,552	1,154	1,155	1,298	1,315	1,519	1,579	16,001
1893.....	1,251	1,271	1,436	1,228	1,365	1,645	1,031	1,327	1,250	1,516	1,284	1,540	16,144
1894.....	1,187	1,155	1,234	1,312	1,268	1,655	1,486	1,223	1,753	1,650	1,767	1,698	17,388
1895.....	1,621	1,636	1,476	1,614	1,587	2,134	1,439	1,462	1,725	2,073	2,036	1,809	20,612
1896.....	1,943	1,773	1,429	1,722	1,464	2,147	1,455	1,378	1,448	1,989	1,909	1,856	20,513
1897.....	1,696	1,636	1,541	1,640	1,600	2,121	1,494	1,316	1,647	1,688	2,119	1,867	20,365
1898.....	1,763	1,889	1,550	1,778	1,527	2,049	1,474	1,411	1,532	1,891	1,994	1,911	20,769
1899.....	1,900	1,719	1,406	1,714	1,760	2,204	1,428	1,513	1,598	2,283	1,994	2,221	21,740

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Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1900.....	1,994	1,880	1,645	1,754	1,712	2,244	1,840	1,612	1,833	2,114	2,071	2,228	22,927
1901.....	2,191	1,876	1,794	1,889	1,783	2,424	1,635	1,743	1,811	2,349	2,311	2,156	23,962
1902..... ...	2,487	2,102	1,609	2,367	1,780	2,555	2,190	1,695	2,258	2,117	2,403	2,430	25,993
1903.....	2,496	2,199	1,928	2,335	1,720	2,976	2,001	1,947	2,306	2,279	2,530	2,548	27,265
1904.....	2,479	2,407	1,916	2,156	1,940	2,975	2,183	2,042	2,162	2,631	2,523	2,551	27,965
1905.....	2,686	2,197	2,493	1,930	2,323	3,255	2,380	2,188	2,745	2,540	2,523	2,968	30,228
1906.....	3,082	2,700	2,581	2,420	2,379	3,913	2,309	2,896	2,745	3,151	3,083	3,110	34,369

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Births by Sex and Race since 1847, the First Year of Registration, Former New New York City (Records Incomplete).

Year.	Total.	Male.	Female.	Unknown.	White.	Colored.	Not Stated.
1847	314	169	145	..	313	1	..
1848	174	96	78	..	173	1	..
1849				..			..
1850				..			..
1851	5	3	2	..	5		..
1852				..			..
1853	9,287	4,899	4,379	9	9,174	112	1
1854	17,076	8,816	8,246	14	16,858	218	..
1855	13,371	6,961	6,399	11	13,210	161	..
1856	15,603	8,182	7,400	21	15,417	186	..
1857	17,680	9,063	8,602	15	17,558	122	..
1858	12,132	6,380	5,739	13	12,069	63	..
1859	8,128	4,219	3,881	28	8,080	48	..
1860	5,998	3,154	2,833	11	5,961	37	..
1861	9,869	5,072	4,748	49	9,798	71	..
1862	7,633	3,927	3,693	13	7,607	26	..
1863	6,373	3,287	3,071	15	6,335	38	..
1864	5,689	2,968	2,708	13	5,661	28	..
1865	5,332			..			..
1866	10,117	5,202	4,905	10	10,025	87	5
1867	12,569	6,397	6,164	8	12,405	164	..
1868	12,672	6,531	6,136	5	12,564	108	..
1869	13,947	7,096	6,835	16	13,755	192	..
1870	14,524	7,560	6,910	54	14,353	169	2
1871	20,821	10,749	10,032	40	20,595	226	..
1872	22,068	11,282	10,763	23	21,769	299	..
1873	22,683	11,707	10,919	59	22,465	218	..
1874	25,747	13,276	12,387	84	25,514	233	..
1875	23,813	12,054	11,669	90	23,559	253	1
1876	23,744	12,114	11,550	80	23,403	341	..
1877	25,569	13,074	12,495	..	25,266	303	..
1878	25,729	13,154	12,575	..	25,381	348	..
1879	25,573	13,269	12,303	1	25,236	337	..
1880	27,536	14,356	13,179	1	27,174	362	..

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Year.	Total.	Male.	Female.	Unknown.	White.	Colored.	Not Stated.
1881	26,130	13,359	12,771	..	25,761	369	..
1882	27,321	14,065	13,253	3	26,992	329	..
1883	28,972	14,894	14,078	..	28,617	355	..
1884	30,527	15,495	15,029	3	30,109	418	..
1885	30,030	15,524	14,503	3	29,678	352	..
1886	31,319	16,191	15,127	1	30,935	384	..
1887	34,023	17,515	16,507	1	33,661	362	..
1888	36,136	18,538	17,598	..	35,744	392	..
1889	37,527	19,269	18,258	..	37,097	430	..
1890	39,250	20,298	18,952	..	38,818	432	..
1891	46,904	23,993	22,911	..	46,331	573	..
1892	49,447	25,291	24,156	..	48,890	557	..
1893	51,529	26,451	25,078	..	50,930	599	..
1894	55,636	28,369	27,267	..	54,931	705	..
1895	53,731	27,580	26,151	..	53,027	704	..
1896	55,623	28,244	27,379	..	54,872	751	..
1897	54,089	27,538	26,551	..	53,285	804	..
1898	53,359	27,271	26,088	..	52,575	784	..
1899	52,068	26,824	25,245	..	51,273	795	..
1900	54,616	28,157	26,459	..	53,667	949	..
1901	54,013	27,492	26,521	..	53,047	966	..
1902	57,511	29,314	28,197	..	56,492	1,019	..
1903	62,131	31,613	30,518	..	60,976	1,155	..
1904	65,229	32,926	32,303	..	64,026	1,203	..
1905	66,862	34,176	32,686	..	65,592	1,270	..
1906	70,311	36,043	34,268	..	69,011	*1,300	..

*Includes 14 Chinese.

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Old New York.

(boroughs of manhattan and the bronx).

Cases of Contagious and Infectious Diseases Reported from 1874 to 1906, inclusive.

Year.	Croup.	Diphtheria.	Measles.	Scarlet Fever.	Smallpox.	Typhoid Fever.	Typhus Fever.	Tuberculosis.
1874		3,684	1,407	3,051	1,462	488	48	
1875		4,521	703	1,730	3,397	634	56	
1876		3,471	1,638	2,406	883	561	15	
1877		2,328	1,719	3,475	48	607	15	
1878		3,484	2,172	3,916	5	594	10	
1879		1,783	2,333	5,446	65	432	8	
1880		3,307	3,891	3,048	64	508	2	
1881		5,196	3,076	7,164	1,338	901	603	
1882		3,507	4,637	5,961	702	686	207	
1883		2,096	3,828	3,825	26	1,393	71	
1884		2,223	4,395	3,262	5	1,102	133	
1885		2,920	4,095	2,634	98	974	84	
1886		3,737	5,028	1,696	109	896	66	
1887		5,923	6,062	3,147	343	1,004	2	
1888		6,491	7,279	7,188	311	1,108	4	
1889		6,489	6,443	8,849	2	1,414	...	
1890		4,350	9,544	3,087	5	1,100	4	
1891	490	4,874	11,980	7,442	21	1,342	9	
1892	530	4,654	12,780	7,048	378	1,140	241	
1893	553	6,468	7,122	5,764	464	1,008	473	
1894	486	9,155	9,493	4,768	770	792		
1895	428	9,925	8,203	3,808	41	965		
1896	306	11,093	11,850	4,728	5	1,002	3	
1897	400	10,496	9,118	7,699	73	1,004	...	
1898	380	7,213	11,157	6,680	12	1,535	1	
1899	290	7,920	8,985	4,586	63	1,290		
1900		*8,364	12,906	4,381	143	1,759		
1901		7,726	7,962	10,895	1,461	1,945		
1902		10,413	13,560	7,724	917	2,629		9,722
1903		11,616	7,838	7,443	26	2,462		11,203
1904		12,183	20,489	8,721	43	2,136		13,522
1905		8,545	10,761	4,728	12	2,194		15,036
1906		8,695	21,270	4,634	48	2,014		13,891

* Including Croup since 1900.

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City and Borough of Brooklyn.

Estimated Population on July 1 in Each Year, from 1790 to 1906, Inclusive.

Year.	Population.	Year.	Population.	Year.	Population.	Year.	Population.
1790.....	1,598	1820....	7,114	1850....	97,534	1880.....	568,155
1791.....	1,662	1821....	7,742	1851....	106,279	1881.....	586,365
1792.....	1,729	1822....	8,412	1852....	115,810	1882.....	605,160
1793.....	1,798	1823....	9,140	1853....	126,195	1883.....	624,556
1794.....	1,871	1824....	9,931	1854a...	189,113	1884.....	644,574
1795.....	1,946	1825....	10,791	1855....	206,147	1885.....	665,234
1796.....	2,024	1826....	11,600	1856....	217,227	1886 b...	695,648
1797.....	2,106	1827....	12,469	1857....	228,901	1887.....	732,129
1798.....	2,190	1828....	13,403	1858....	241,204	1888.....	756,727
1799.....	2,279	1829....	14,407	1859....	254,157	1889.....	782,205
1800.....	2,366	1830....	15,512	1860....	267,131	1890.....	808,258
1801.....	2,516	1831....	17,001	1861....	272,836	1891.....	833,133
1802.....	2,676	1832....	18,633	1862....	278,663	1892.....	858,772
1803.....	2,846	1833....	20,421	1863....	284,614	1893.....	885,201
1804.....	3,027	1834....	22,381	1864....	290,692	1894 c...	952,344
1805.....	3,219	1835....	24,529	1865....	297,814	1895.....	984,390
1806.....	3,423	1836....	26,554	1866....	315,600	1896 d...	1,023,769
1807.....	3,641	1837....	28,747	1867....	334,448	1897.....	1,058,478
1808.....	3,872	1838....	31,121	1868....	354,421	1898.....	1,094,365
1809.....	4,118	1839....	33,691	1869....	375,588	1899.....	1,131,467
1810.....	4,379	1840....	36,530	1870....	397,404	1900.....	1,169,553
1811.....	4,251	1841....	40,283	1871....	413,399	1901.....	1,205,796
1812.....	4,093	1842....	44,423	1872....	430,038	1902.....	1,243,162
1813.....	3,940	1843....	48,988	1873....	447,347	1903.....	1,281,686
1814.....	3,838	1844....	54,022	1874....	465,352	1904.....	1,321,403
1815.....	4,254	1845....	59,574	1875....	483,788	1905.....	1,362,352
1816.....	4,714	1846....	65,761	1876....	499,600	1906.....	1,404,569
1817.....	5,225	1847....	72,591	1877....	515,927		
1818.....	5,791	1848....	80,130	1878...	532,789		
1819.....	6,418	1849....	88,452	1879....	550,202		

a Williamsburgh and Bushwick annexed.
b New Lots annexed.
c Flatbush, Gravesend and New Utrecht annexed.
d Flatlands annexed.

Note.—The population for intercensal years has been calculared by the geometrical method, that for the various annexed towns separately, as described elsewhere.

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City and Borough of Brooklyn.

Population by Census from 1790 to 1905, Inclusive.

Years.	Population.	Authority.	Date.
1790	1,603	United States Census	Aug. 1
1800	2,378	United States Census	" 1
1810	4,402	United States Census	" 1
1814	3,805	New York State Census	June 1
1820	7,175	United States Census	Aug. 1
1825	10,791	New York State Census	July 1
1830	15,394	United States Census	June 1
1835	24,529	New York State Census	July 1
1840	36,233	United States Census	June 1
1845	59,574	New York State Census	July 1
1850	96,838	United States Census	June 1
1855	205,250	New York State Census	" 1
1860	266,661	United States Census	" 1
1865	296,378	New York State Census	" 1
1870	396,099	United States Census	" 1
1875	482,493	New York State Census	" 1
1880	566,663	United States Census	" 1
1890	806,343	United States Census	" 1
1892	957,958	New York State Census	Feb. 1
1900	1,166,582	United States Census	June 1
1905	1,358,891	New York State Census	" 1

Note.—The population given in this table is that of the City of Brooklyn, which was not made conterminous with Kings County until 1896.

Population by Census of Various Towns Annexed to Brooklyn, from 1854 to 1896, with Dates of Annexation.

Town.	Ward.	Date of Annexation.	Population.				
			U. S. Census.		N. Y. State Census.		Estimated at time of Annexation.
Williamsburg	13 to 16	1854	1850	34,519	1855	56,476	51,602
Bushwick	17 and 18						
New Lots	26	Aug. 1, 1886	1880	13,655	1892	38,541	23,457
Flatbush	29	Apr. 25, 1894	1880	7,634	1892	12,625	34,387
Gravesend	31	May 3, 1894	1880	3,674	1892	8,418	
New Utrecht	30	July 1, 1894	1880	4,742	1892	9,129	
Flatlands	32	Jan. 1, 1896	1880	3,127	1892	4,234	4,749

The intercensal population of these towns has been calculated by the geometrical method, using the census populations given above as the basis.

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Population of the Borough

Ward.	Date of Formation.	From what Taken.	1800.	1810.	1814.	1820.	1825.	1830.	1835.	1840.
1st.....	1834	Village and Town of Brooklyn.....	2,378	4,402	3,805	7,175	10,791	15,394	1,523	2,148
2d.....	1834								4,674	5,447
3d*a*.....	1834								2,764	3,834
4th.....	1834								5,724	6,827
5th.....	1834								4,510	7,415
6th.....	1834	Town of Brooklyn							2,139	4,043
7th	1834								2,042	4,521
8th*b*.....	1834								487	944
9th*b*.....	1834								666	1,054
10th*b*.....	1850									
11th.....	1863	5th Ward								
12th.....	1863	6th Ward.....								
13th.....	1854	Williamsburg.....								5,094
14th.....	1854									
15th.....	1854									
16th.....	1854									
17th.....	1854	Bushwick	656	798	759	930	958	1,620	3,325	1,295
18th.....	1854									
19th.....	1856	7th and 13th Wards..								
20th.....	1863	5th Ward								
21st.....	1868	7th Ward.....								
22d.....	1868	8th Ward								
23d	1873	7th Ward								
24th.....	1873	9th Ward.....								
25th.....	1873	7th Ward								
26th.....	1886	New Lots								
27th.....	1892	18th Ward								
28th.....	1892									
29th.....	1894	Flatbush.....	946	1,159	1,062	1,027	1,049	1,143	1,537	2,099
30th.....	1894	New Utrecht.....	778	907	970	1,009	982	1,217	1,287	1,283
31st.....	1894	Gravesend	489	520	552	534	408	565	695	799
32d.....	1896	Flatlands.....	493	517	507	512	491	596	684	810
Total..			5,740	8,303	7,655	11,187	14,679	20,535	32,057	47,613

NOTE.—Flatbush, New Utrecht, Gravesend and Flatlands were formed in 1871; New Lots was formed
*Inmates of institutions, Kings County at large, not included in Ward figures.
a. Present Third Ward formed from Tenth in 1878; old Third Ward is now part of First.
b. Present Eighth, Ninth and Tenth Wards formed in 1868; the Ninth took in part of the Twenty-

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of Brooklyn by Wards.

1845.	1850.	1855.	1860.	1865.	1870.	1875.	1880.	United States Census, 1890.	New York State Census, 1892.	United States Census, 1900.
4,622	6,062	6,441	6,967	6,128	6,476	16,084	18,729	20,040	22,784	20,327
6,903	9,357	8,383	9,817	8,760	9,117	8,860	9,254	8,986	10,529	8,565
5,936	8,749	8,900	10,084	8,890	9,984	15,809	18,271	18,754	24,140	17,949
8,819	11,032	12,282	11,766	11,506	12,087	12,616	12,819	12,324	15,580	12,568
9,419	13,682	16,352	17,400	17,820	20,490	18,591	18,517	20,175	19,175	18,862
10,651	11,536	18,490	22,710	26,407	28,296	34,072	35,437	37,693	48,939	42,485
9,958	6,371	12,523	12,096	15,968	22,312	26,488	31,663	35,726	39,490	40,471
1,369	2,585	5,318	9,190	9,829	9,592	12,127	17,388	31,239	42,758	52,414
1,897	3,261	9,133	17,342	23,443	15,279	13,643	15,044	17,696	21,081	42,876
.....	11,782	21,749	25,258	28,668	34,592	24,866	27,140	34,031	50,318	39,100
.....	12,421	22,213	28,821	18,242	21,243	21,629	21,680	22,693	25,007	22,608
.....		6,990	11,083	13,085	18,302	17,525	22,201	27,368	31,734	30,354
		14,044	17,958	17,791	18,711	19,547	21,029	21,628	24,282	24,029
11,338	30,780	12,414	15,475	15,425	20,649	23,925	25,559	27,246	32,629	31,483
		6,559	10,566	11,449	18,406	21,255	23,654	27,630	30,319	30,269
		15,350	21,181	24,379	26,438	39,206	42,712	45,720	51,152	56,550
1,857	3,739	5,508	7,934	10,234	17,353	23,998	30,088	41,424	46,315	57,309
		2,601	4,316	6,319	11,607	17,459	23,926	74,960	22,267	25,133
.....			6,697	8,055	16,321	21,908	27,661	36,244	38,187	37,645
.....				13,980	19,179	21,430	24,188	24,136	26,120	25,446
.....					27,904	24,834	31,956	50,118	57,362	58,957
.....					11,761	17,736	25,473	50,250	57,807	66,575
.....						10,005	14,396	29,348	33,292	61,813
.....						5,799	8,823	16,771	17,888	31,767
.....						13,081	19,055	44,638	56,682	48,328
.....		2,261	3,271	5,009	9,800	11,047	13,655	29,505	38,541	66,086
.....									34,695	43,961
									38,882	77,912
2,225	3,177	3,280	3,471	2,778	6,309	6,940	7,634	12,338	12,625	27,188
1,863	2,129	2,730	2,781	3,394	3,296	3,843	4,742	8,854	9,129	24,700
898	1,064	1,256	1,286	1,627	2,131	2,180	3,674	6,937	8,418	14,609
936	1,155	1,578	1,652	1,904	2,286	2,651	3,127	4,075	4,234	8,243
78,691	138,882	216,355	279,122	311,090	419,921	509,154	599,495	838,547	*3,707 996,071	1,166,582

from Flatbush in 1852.

second in 1891.

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CITY AND BOROUGH OF BROOKLYN.

Deaths, Births, Marriages and Still-births Reported from 1866 to 1906, inclusive.

Year.	Deaths.	Births.	Marriages.	Still-births.
1866	8,683	* 3,124	* 853	
1867	8,389	5,224	1,677	
1868	8,750	4,802	2,130	
1869	8,759	5,349	2,461	
1870	9,546	4,817	2,367	
1871	10,259	4,424	2,447	
1872	10,648	4,216	2,561	
1873	10,968	5,027	2,520	1,003
1874	11,011	7,668	2,675	1,033
1875	12,470	8,576	2,734	978
1876	12,334	9,723	2,850	986
1877	11,362	10,507	3,047	819
1878	11,075	10,747	3,991	844
1879	11,569	10,462	3,322	885
1880	13,222	11,975	3,814	880
1881	14,533	10,906	3,948	923
1882	15,014	10,801	4,584	1,076
1883	13,758	11,050	4,150	1,011
1884	14,116	11,718	4,510	1,659
1885	15,369	11,588	4,364	1.184
1886	15,790	11,132	4,910	1,193
1887	17,078	12,750	5,700	1,299
1888	16,061	11,562	4,763	1,277
1889	18,480	17,075	9,606	1,279
1890	19,827	15,000	7,500	1,305
1891	21,349	16,500	7,500	1,733
1892	20,807	18,000	7,800	1,682
1893	21,017	19,250	7,350	1,550
1894	21,183	19,419	5,935	1,673
1895	22,568	20,465	6,779	1,770
1896	22,501	21,424	7,116	1,807
1897	20,674	21,109	7,254	1,919
1898	21,989	21,395	7,129	1,888
1899	21,649	21,203	7,612	1,688

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Year.	Deaths.	Births.	Marriages.	Still-births.
1900	23,507	22,572	8,124	1,813
1901	23,271	22,182	8,303	1,776
1902	22,344	23,507	9,014	1,829
1903	22,192	27,292	9,616	1,838
1904	24,831	28,859	10,019	1,922
1905	23,935	30,972	10,782	1,991
1906	25,024	34,538	11,966	2,071

* Marriages and births were first recorded in the last eight months of the year 1856.

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Annual Number of Deaths from

Year.	Diphtheria.	Croup.	Scarlet Fever.	Measles.	Typhoid Fever.	Small-pox.	Typhus Fever.	Whooping Cough.
1868	133	126	487	30	103	2	20	191
1869	139	176	348	262	96	21	12	193
1870	110	200	220	62	111	135	7	71
1871	157	255	522	67	92	373	8	110
1872	184	327	327	59	149	737	12	96
1873	252	325	314	69	103	116	3	156
1874	580	318	479	90	81	53	7	130
1875	965	440	304	6	102	619	9	161
1876	812	412	352	159	97	309	8	190
1877	778	325	730	10	82	5	3	118
1878	544	317	363	67	59			105
1879	689	250	344	38	59	2		204
1880	1,118	420	222	156	71	2		111
1881	1,169	438	651	56	99	142	3	118
1882	631	334	892	168	93	65	1	249
1883	409	318	505	69	92	3		132
1884	385	280	218	114	107	2		222
1885	519	313	363	175	153	3	2	157
1886	782	403	340	106	123	52	3	260
1887	950	503	271	172	143	109	1	59
1888	984	301	475	59	153	90		194
1889	1,101	366	273	205	161			281
1890	902	381	227	182	182		1	238
1891	756	414	485	203	180			140
1892	775	362	412	168	162	51		192
1893	607	271	7	111	179	200		261
1894	1,279	381	188	204	159	102		243
1895	1,139	315	124	192	173	1		263
1896	1,063	247	150	333	163	1		179
1897	795	203	187	190	173	3	...	164
1898	595	150	159	194	270			234

A. The figures on Diarrhœal Diseases since 1877 have been revised so as to agree with the

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BROOKLYN.

Prominent Causes, for Thirty-nine Years.

Malarial Fever.	Bronchitis.	Pulmonary Tuberculosis.	Pneumonia.	A Diarrhœal.	A Diarrhœal, under 5 years.	Cancer.	Bright's Disease and Nephritis.	All Nervous.	Puerperal Diseases.	Violence.	Sunstroke and Heat.	Suicide.
98	182	1,098	449	1,699	1,530	112	106	1,054	34	262	36	27
99	212	1,136	577	1,249	1,130	131	157	1,028	36	229	4	19
143	184	1,281	520	1,473	1,289	134		1,523	88	269	..	25
138	231	1,355	613	952	855	155		1,596	108	320	..	28
146	239	1,465	778	1,718	1,550	147	216	1,943	141	338	..	31
153	243	1,376	745	1,564	1,411	168	211	1,388	131	312	5	31
124	285	1,267	744	1,400	1,272	197	228	1,231	157	303	6	34
137	369	1,522	892	1,395	1.262	200		1,292	157	312	..	39
137	397	1,539	883	1,546	1,367	192		1,225	128	622	..	59
154	314	1,587	724	1,569	1,332	200	328	1,123	156	299	6	50
184	365	1,529	829	1,238	1,084	233	332	1,297	149	294	13	52
145	479	1,665	975	1,364	1,127	231	318	1,238	182	316	22	37
256	495	1,736	972	1,738	1,498	221	327	1,387	155	420	36	31
306	471	1,754	1,022	1,854	1,573	254	414	1,512	162	402	48	55
289	684	1,806	1,204	2,082	1,717	285	481	1,498	172	433	36	62
258	573	1,847	1,245	1,799	1,482	262	485	1,427	148	414	29	58
272	622	1,913	1,118	2,081	1,743	323	507	1,357	208	440	41	66
242	675	1,965	1,446	2,113	1,807	301	614	1,483	216	477	57	53
241	764	2,085	1,468	1,651	1,398	293	675	1,549	167	422	8	46
256	790	2,026	1,418	1,969	1,672	349	657	1,897	154	485	32	61
199	786	2,051	1,663	2,249	1,938	345	867	2,198	163	517	34	75
132	392	2,055	1,814	1,860	1,606	356	827	2,298	159	488	14	86
168	1.010	2,169	2,325	2,240	1,968	414	892	2,438	166	570	23	94
120	1,015	2,117	2,537	2,413	2,133	416	933	2,430	201	492	18	73
105	987	2,128	2,357	2,569	2,277	418	1,039	2,619	240	582	94	79
140	960	2,174	2,569	2,514	2,234	441	1,060	2,649	173	601	14	120
127	832	2,260	2,181	2,595	2,235	457	1,199	2,292	168	757	52	165
138	832	2,299	2,624	2,721	2,382	572	1,387	2,322	188	864	43	161
148	871	2,245	2,553	2,486	2,130	534	1,448	2,215	237	1,247	333	160
107	802	2,164	2,232	2,124	1,853	561	1,443	2,132	194	992	22	197
90	699	2,394	2.384	2,821	2,439	632	1,503	2,137	164	990	141	189

Bertillon classification of causes of death, with the addition of dysentery.

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Year.	Diphtheria.	Croup.	Scarlet Fever.	Measles.	Typhoid Fever.	Small-pox.	Typhus Fever.	Whooping Cough.
1899	583	161	175	197	205			113
1900	673	190	130	310	301			235
1901	*732		495	162	272	9		110
1902	762		275	239	322	91		188
1903	830		244	167	267	2		118
1904	706		282	333	303	6		69
1905	594		182	193	297	8		138
1906	793		258	446	230	6		132

* Including Croup since 1901.

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Malarial Fever.	Bronchitis.	Pulmonary Tuberculosis.	Pneumonia.	A Diarrhœa.	A Diarrhœal, under 5 years.	Cancer.	Bright's Disease and Nephritis.	All Nervous.	Puerperal Diseases.	Violence.	Sunstroke and Heat.	Suicide.
59	761	2,435	2,682	2,457	2,090	701	1,624	1,981	152	902	38	153
58	775	2,445	3,216	2,707	2,361	695	1,717	1,853	260	1,008	103	198
67	670	2,479	2,891	2,916	2,447	760	1,897	1,917	213	1,199	331	189
46	815	2,317	3,001	2,207	1,890	791	1,976	1,668	197	975	9	242
36	653	2,396	2,910	1,854	1,583	778	2,123	1,724	228	1,144	59	234
42	630	2,634	3,670	2,427	2,140	817	2,253	2,054	236	1,136	14	223
29	408	2,420	3,099	2,274	2,078	899	1,984	2,413	275	1,167	71	174
29	524	2,557	3,557	2,266	2,104	975	2,076	1,998	249	1,330	28	204

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CITY OF

Cases of Contagious and Infectious Diseases

Year	Croup.	Diphtheria.	Measles.	Scarlet Fever.	Small-pox.	Typhoid Fever.	Typhus.
1873.....		319		930	426	207	10
1874.....		1,651		2,448	268	214	9
1875.....		2,699		1,269	2,519	263	12
1876.....		2,329		1,657	1,131	191	11
1877.....		2,280		2,930	87	180	5
1878.....		1,744		1,988	3	168	..
1879.....		1,801	219	2,208	6	137	..
1880.....		3,058	2 572	1,727	10	143	..
1881.....		3,218	906	4,554	498	181	9
1882.....		4,599	2,670	4,599	185	148	2
1883.....		1,185	1,604	3,167	12	202	..
1884.....		976	1,225	1,990	14	194	..
1885		1,348	3,441	2,288	16	435	..
1886.....		1,632	923	1,645	125	343	..
1887.....		1,995	2,479	1,877	215	444	..
1888.....		2,267	674	2,675	374	394	..
1889.....		2 798	4,723	2,068	2	399	..

Reporting of measles was begun in the latter part of 1879; croup in 1895; typhoid fever not fully
* Croup included in diphtheria since 1900.

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BROOKLYN.

Reported from 1873 *to* 1906, *Inclusive.*

Year.	Croup.	Diphtheria.	Measles.	Scarlet Fever.	Small-pox.	Typhoid Fever.	Typhus.	Tuberculosis.
1890.....		2,241	1,821	1,657		313	..	
1891.....		1,850	2,892	2,701		418	..	
1892.....		1,829	3,118	3,078	184	243	..	
1893.....		1,672	2,272	2,961	449	216	..	
1894.....		3,812	4,688	2,119	459	284	..	
1895.....	411	4,276	3,438	1,991	11	285	..	
1896.....	319	4,912	7,074	2,471	3	245	..	
1897	285	3,862	4,695	2,924	7	312	..	
1898.....	208	3,008	2,933	2,136		581	..	
1899.....	206	2,688	3,098	2,308	31	422	..	
1900.....		*3,856	5,111	1,878	12	697	..	
1901.....		3,942	3,511	5,188	410	644	..	
1902.....		4,236	5,506	3,529	503	961	..	2,838
1903.....		5,765	4,862	2,921	15	1,023	..	3,426
1904.....		5,026	10,321	4,037	29	1,050	..	4,339
1905.....		4,307	7,053	2,884	34	1,913	..	4,897
1906.....		5,211	13,827	2,760	52	1,215	..	5,324

reported.

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Population of Borough of

Ward.	Date of Formation.	Formerly Known as	1800.	1810.	1814.	1820.	1825.	1830.	1835.	18,0.
1st	1898	*Long Island City ...				In this year the aggregate of the county alone was taken.				
2d.....	1898	Newtown	2,312	2,437	2,472		2,478	2,610	3,505	5,054
3d.....	1898	Flushing.....	1,818	2,230	2,271		2,325	2,820	3,643	4,124
4th	1898	Jamaica.....	1,661	2,110	1,880		2,401	2,376	2,885	3,781
5th	1898	†Hempstead								
		Total.....	5,791	6,777	6,623		7,204	7,806	10,033	12,959

* Formed in 1870 from Newtown. The
† Only part of Hempstead was consolidated with the other towns forming Greater

Population of Borough of

Ward.	Date of Formation.	Formerly Known as	1800.	1810.	1814.	1820.	1825.	1830.	1835.	1850
1st.....	1898	Castleton	1,056	1,301	1,348	1,527	1,786	2,216	2,868	4,273
2d.....	1898	*Middletown.....								
3d.....	1898	Northfield.....	1,377	1,595	1,710	1,980	1,984	2,162	2,297	2,745
4th	1898	Southfield	932	1,007	998	1,012	719	971	845	1,619
5th	1898	Westfield.....	1,198	1,144	1,446	1,616	1,443	1,773	1,681	2,326
		Total.....	4,563	5,347	5,502	6,135	5,932	7,122	7,691	10,963

* Formed in 1860, from Castleton and Southfield.
† Includes 126 inmates of Institutions

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Queens, by Wards.

1845.	1850.	1855.	1860.	1865.	1870.	1875.	1880.	United States Census, 1890.	New York State Census, 1892.	United States Census, 1900.
.....						15,587	17,129	30,506	35,745	48,272
5,521	7,208	4,694	13,725	13,891	20,274	10,614	9,804	17,549	19,776	40,903
3,918	5,376	7,970	10,189	10,813	14,650	15,357	15,906	19,803	20,816	25,870
3,883	4,247	5,632	6,515	6,777	7,745	8,983	10,088	14,441	17,654	30,761
.....										7,193
13,322	16,831	18,296	30,429	31,481	42,669	50,541	52,927	82,299	93,991	152,999

other towns were formed in 1788.
New York, and the population previous to consolidation cannot be given.

Richmond, by Wards.

1845.	1850.	1855.	1860.	1865.	1870.	1875.	1880.	United States Census, 1890.	New York State Census, 1892.	United States Census, 1900.	New York State Census, 1905.
5,203	5,389	8,252	6,678	7,683	9,504	10,957	12,679	16,423	17,261	21,441	23,659
.....			6,243	6,866	7,589	8,332	9,029	10,557	11,477	13,200	14,035
3,343	4,020	4,187	4,841	5,201	5,949	6,619	7,014	9,811	9,641	13,701	15,347
2,631	2,709	5,449	3,645	4,407	5,082	4,426	4,980	6,644	6,324	9,516	9,581
2,497	2,943	3,501	3,985	4,052	4,905	4,862	5,289	8,258	8,648	9,163	10,198
13,674	15,061	21,389	25,392	28,209	33,029	35,196	38,991	51,693	53,351	67,021	172,846

The other towns were formed in 1788.
not credited to wards,

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CITY OF

Population by Census,

Boroughs.	1800.	1810.	1814.	1820.	1825.	1830.	1835.	1840.	1845.
Manhattan	60,489	96,373	95,519	123,706	160,686	197,112	268,089	312,710	371.223
The Bronx									
Brooklyn	5,740	8.303	7.655	11,187	14,679	20,535	32,057	47.613	78,691
Queens	5,791	6.777	6.623	*6.914	7,204	7,806	10.033	12.059	13.322
Richmond	4.563	5,347	5,502	6,135	5.932	7,122	7,691	10.965	13.674
Entire City	76,583	116,800	115,299	147,942	193,901	232,575	317,870	384,247	476,910

*Arithmetical mean between previous and following census (see note to Queens' table).

Note.—The census population, as given in this table, is somewhat less than the true population of the to the tables for Manhattan and The Bronx and Queens.

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NEW YORK.

1850 *to* 1905, *inclusive.*

1850.	1855.	1860.	1865.	1870.	1875.	1880.	United States Census, 1890.	New York State Census, 1892.	United States Census, 1900.	New York State Census, 1905.
515,547	629,810	813,669	726,386	942,292	1,005,692	1,164,673	1,441,216	1,801,739	1,850,093	2,112,697
4,436	12,436	16,343	19,024	28,981	36,194	41,626	74,085		200,507	271,629
138,882	216,355	279,122	311,090	419,021	509,154	599,495	838,547	966,071	1,166,582	1,358,891
16,831	18,276	30,429	31,481	42,669	50,541	52,927	82,269	93,991	152,999	198,241
15,061	21,387	25,392	28,209	33,029	35,196	38,691	51,693	53,351	67,021	72,846
690,757	898,286	1,164,955	1,116,190	1,466,892	1,636,777	1,897,712	2,487,810	2,915,152	3,437,202	4,014,304

territory now comprised within the limits of The City of New York, for the reasons given in the foot notes

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Table of Maximum, Minimum and Mean Temperature and Rainfall in the Vicinity of The City of New York at Fort Columbus, from 1822 to 1854; Deaf and Dumb Asylum from 1855 to 1868, and New York Observatory, Central Park, from 1869 to Date.

(Figures furnished by Daniel Draper, Ph. D., Director of Central Park Observatory.)

Year.	Temperature—Fahr.					Rainfall, in Inches (Including Snow Water).					Depth of Snow. (Inches.)
	Maximum.	Month.	Minimum.	Month.	Mean.	Maximum.	Month.	Minimum.	Month.	Total.	
1822	100	July ..	—1	Jan ...	54.2						
1823	91	July ..	3	Feb.. Mar.	50.5	...					
1824	96	July ..	2	Feb...	52.1						
1825	104	July ..	—3	Dec...	54.4	...					
1826	97	July ..	—1	Jan ...	52.5					...	
1827	96	July ..	0	Jan ...	51.8					...	
1828	99	July ..	9	Jan ...	54.					...	
1829	95	July ..	7	Jan ...	52.5						
1830	98	July ..	5	Jan ...	54.8						
1831	98	Aug...	8	Jan ...	51.6						
1832	97	Aug...	1	Jan ...	51.5		...				
1833	94	July ..	8	Mar ..	51.5						
1834	94	July .. Aug...	6	Dec...	51.						
1835	89	July .. Aug...	—1	Jan ...	49.6						
1836	89	July .. Sept ..	0	Feb...	47.6	6.46	June ..	.63	May...	27.57	
1837	86	July .. Aug...	10	Jan .. Feb..	49.1	9.50	May...	2.10	Sept...	65.51	
1838	94	July .. Aug...	13	Feb...	50.3	4.96	Sept...	1.83	July ..	41.90	
1839	86	July ..	6	Jan ...	51.2	7.61	Dec...	.69	Jan....	42.97	
1840	91	June..	2	Jan ...	51.2	4.59	Oct....	1.00	Dec...	29.80	
1841	92	June..	9	Jan ...	51.2	5.30	Jan....	.80	Feb...	42.08	
1842	85	July . Sept..	16	Jan .. Feb..	53.4	4.30	Oct....	1.07	Jan....	33.98	
1843	93	June . July .	9	Feb...	51.4	15.26	Aug...	.76	June..	41.37	
1844	92	June..	3	Jan ...	52.	6.	July...	.55	April..	36.38	
1845	99	July ..	6	Feb...	53.3	4.87	Jan....	1.22	April..	34.08	
1846	95	July ..	5	Feb...	52.3	9.70	May...	.48	Sept...	48.91	
1847	94	June..	12	Feb.. Nov.. Dec..	52.3	6.93	Aug...	1.53	April..	64.85	...
1848	91	June. July .	3	Jan ...	52.3	7.28	May ..	1.16	April..	36.80	
1849	94	July ..	0	Jan ...	50.2	5.63	Oct....	.61	Jan....	31.74	

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Year.	Temperature—Fahr.					Rainfall, in inches (Including Snow Water).					Depth of Snow (Inches).
	Maximum.	Month.	Minimum.	Month.	Mean.	Maximum.	Month.	Minimum.	Month.	Total.	
1850	94	July ..	9	Feb...	50.9	9.20	May...	2.33	Nov..	54.53	...
1851	93	July ..	4	Dec...	52.1	6.94	April .	.90	June..	40.88	...
1852	93	July ..	—2	Jan. ..	51.4	6.20	Aug...	2.06	Oct....	43.84	
1853	98	June..	9	Jan. ..	52.2	6.80	Nov ..	1.04	Dec...	52.20	
1854	93	July ..	5	Dec...	50.7	8.80	April .	.70	Mar...	45.18	
1855	93	July ..	—7	Feb...	50.7	7.37	Oct...	1.57	Sept...	51.76	
1856	95	July ..	—5	Jan. ..	50.5	6.73	Aug...	.66	Feb...	41.92	
1857	90	Aug ..	0	Jan. ..	52.1	9.05	April .	1.30	Nov...	53.88	
1858	93	June..	—3	Feb...	53.1	6.42	June..	1.47	Mar...	52.87	
1859	96	July ..	—5	Jan. ..	53.1	8.21	Mar ..	1.73	Oct....	57.28	
1860	89	July ..	—7	Feb...	52.9	7.57	Nov. .	1.43	June..	47.17	
1861	92	Aug...	—3	Feb...	53.8	8.09	Nov. .	1.73	Dec...	56.52	
1862	95	Aug...	8	Dec...	53.2	9.03	June..	1.91	Dec...	53.98	
1863	90	June..	6	Feb...	54.2	8.60	July ..	1.05	Sept ..	57.03	
1864	97	June..	8	Feb...	55.4	5.90	Dec...	2.04	Feb...	48.01	
1865	95	July ..	6	Jan. ..	55.5	10.42	June..	2.23	Aug...	62.86	
1866	98	July ..	—13	Jan. ..	52.1	10.09	Feb...	1.67	July ..	51.68	
1867	91	June..	4	Jan. ..	49.8	10.18	June..	.78	Sept ..	54.61	
1868	92	July ..	0	Feb...	48.6	9.60	Sept...	2.01	Oct. ..	64.02	
1869	94	Aug ..	4	Mar...	51.4	6.87	Feb...	1.39	April .	46.47	30.67
1870	94	June..	9	Feb. .. Dec...	53.5	5.11	April .	1.83	May...	42.12	25.49
1871	92	May ..	—2	Dec...	51.1	7.50	Oct....	2.07	Jan...	51 26	34.22
1872	95	July ..	3	Mar... Dec...	51.0	7.83	July ..	1.29	Feb...	42.49	40.37
1873	94	July ..	—1	Jan. .. Feb...	50.9	9.56	Aug...	1.28	June..	47.99	40.93
1874	98	June..	3	Feb...	51.3	8.77	April .	1.70	Oct. ..	45.83	35.62
1875	93	June..	—3	Jan. ..	49.4	8.97	Aug...	1.33	May .	40.90	48.25
1876	98	July ..	3	Dec...	51.8	8.79	Mar...	.94	Jan....	41.77	30.74
1877	92	July ..	10	Mar...	52.7	8.14	Oct. ..	.68	Dec...	40.18	27.37
1878	94	July ..	7	Jan. .. Feb...	53.5	7.97	Aug...	1.97	April .	48.66	13.74
1879	98	July ..	—4	Jan. ..	52.3	7.95	Aug...	.43	Oct. ..	39.03	37.62
1880	96	May ..	—6	Dec...	53.2	8.53	July ..	.62	May ..	36.64	27.62
1881	101	Sept. .	—3	Feb...	52.3	5.81	Mar...	.86	Aug...	36.26	23.75
1882	93	July ..	—6	Jan. ..	51.9	16.85	Sept...	1.14	Aug...	45.30	20.14
1883	95	July ..	—1	Dec...	50.4	4.53	Oct. ..	1.49	Mar...	35.77	52.50

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Year.	Temperature—Fahr.					Rainfall in Inches (Including Snow Water).					Depth of Snow (Inches).
	Maximum.	Month.	Minimum.	Month.	Mean.	Maximum.	Month.	Minimum.	Month.	Total.	
1884	91	June.. Aug... Sept..	—3	Dec...	52.4	6.17	Dec...	.21	Sept..	52.25	31.50
1885	99	July...	—2	Feb...	51.1	5.67	Aug...	.41	Sept..	38.34	23.25
1886	94	July...	—4	Feb...	51.0	5.40	May..	.95	Aug...	39.38	31.00
1887	96	July...	4	Jan...	50.9	7.76	June..	.34	May...	43.99	31.87
1888	96	June..	0	Jan...	49.3	8.16	Sept..	1.53	July....	53.32	37.75
1889	91	May... June..	3	Feb...	52.7	11.89	July...	1.10	Dec...	57.16	21.00
1890	98	July...	7	Mar...	52.7	6.56	Oct..	.71	Nov...	45.63	29 63
1891	98	Aug...	9	Mar...	58.8	6.12	Jan....	1.48	June..	39.55	17.37
1892	97	July...	9	Jan...	51.8	7.14	Nov ..	.59	Oct...	35.60	34 63
1893	95	June..	1	Jan....	50.4	8.72	Aug...	1.13	July...	48.26	45.62
1894	96	July...	1	Feb...	52.7	8.68	Sept..	.98	June..	41.01	35.25
1895	97	Sept..	—4	Feb...	52.6	5.01	Jan...	.46	Feb...	35.27	22.75
1896	98	Aug...	—5	Feb...	53.4	7.41	July..	.96	Jan...	41.96	64.00
1897	93	July... Sept..	6	Jan....	53.4	9.56	July. .	.72	Oct...	44.55	31.75
1898	100	July...	8	Feb...	54.5	6.72	May ..	1.25	June..	47.90	35.25
1899	95	July...	—6	Feb.	53.5	6.12	Sept ..	1.09	May...	38.57	35.37
1900	97	July...	5	Feb...	53.7	5.38	Feb...	2.01	Dec...	41.19	13.37
1901	100	July...	8	Jan....	52.0	7.64	July...	.55	Feb...	48.69	10.62
1902	90	July...	8	Dec...	52.8	7.16	Oct ...	1.28	Nov ..	52.77	42.74
1903	95	July...	4	Feb...	52.4	13.31	Oct ...	.30	May...	58.32	20.50
1904	94	July...	—4	Jan....	50.6	7.85	Aug...	1.88	May....	41.64	47.99
1905	96	July...	4	Jan....	53.2	5.84	Sept ..	.72	May...	37.44	26.87
1906	95	Aug...	8	Feb...	54.6	5.90	April..	1.06	Nov ..	40.18	20.25

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